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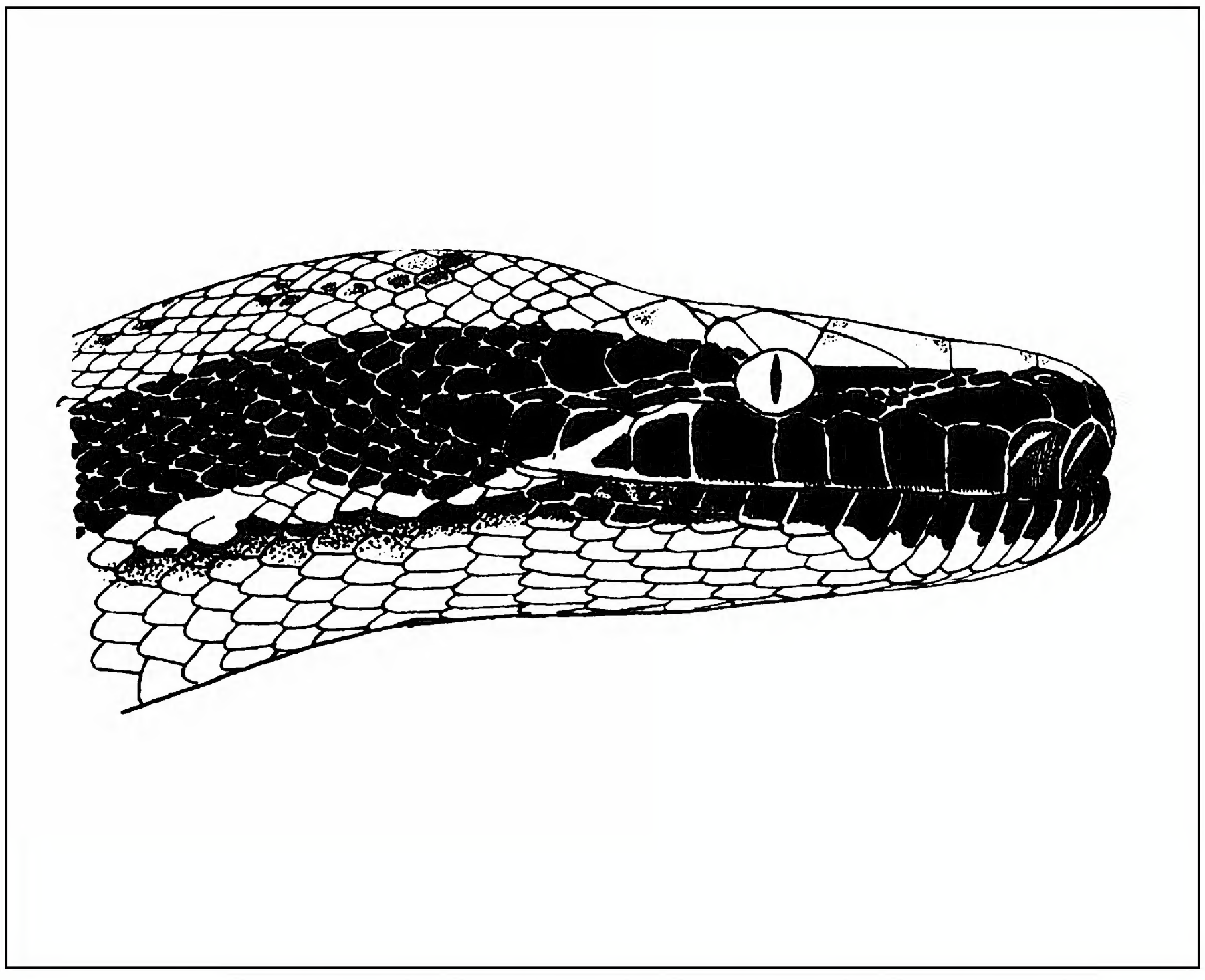

BULLETIN OF THE CHICAGO HERPETOLOGICAL SOCIETY
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The editor thanks Professor Harry Greene of Cornell University for suggesting that the following essay be reprinted in the Bulletin *for the benefit of the herpetological community. "Rising to the Light" was first published in the* Sewanee Review, *Vol. 103, No. 4, Fall 1995.* *Copyright 1995 by Robert Benson. Reprinted with the permission of the editor and the author.*

Rising to the Light

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My father believed that the only good snake was a dead snake, and he had better reasons than most people for this conviction. In the summer of 1918, he was twelve years old. In his yard near a sluggish creek, he was pushing his baby sister in the swing that hung from the lowest branch of an enormous live oak. He was barefooted, of course, and each time he pushed he stepped out of the way, usually stepping out from the tree. The swing rose higher, and his sister squealed happily and threw her head back to watch clouds, branches, and bright sky flying past. The boy who would be my father enjoyed her delight and worked up a sweat trying to get the swing higher. The effort absorbed him, and in his own yard he grew incautious. As he danced out of the way of the rushing swing and swiped at his sister's auburn hair, he brought his bare foot down among the roots of the oak squarely onto a rattlesnake. The small pit viper put both fangs into his right foot just above his big toe.

It took Grandmother several minutes to get from him a reasonable idea of what had happened, and because she had another child, she thought first to kill the snake. In the time it took to dispatch the snake, my father's foot turned a grayish green to the ankle, and his toes began to round as if filling with water.

Grandfather did not cut but he did suck. He put his mouth to the darkening wound, again and again sucking blood and venom from his son's swollen foot. The doctor from town would not see the boy for twenty-four hours. That night, trying to do the right thing, his parents wrapped the foot in hot towels to draw the poison, and the skin split across the top of the swollen foot. The bite of pit vipers hurts like a kidney stone, and rattlesnake venom is especially painful. The boy's fever rose, and he tossed on his bed and shook his head, knotting and unknotting his fingers, biting his lip and his forearm, not crying much. In August heat, he shook with cold and asked for more cover, but as a patchwork comforter was laid across him he screamed with fear. He experienced what he referred to for the rest of his life as "the horrors." Each patch on the comforter was a writhing snake coiling and striking repeatedly. He could not explain his horrors then, and the quilt stayed on. Blood poisoning, loving but primitive treatment, and the natural restlessness of a boy confined to the indoors added up to nearly four months of recuperation. He remembered for the rest of his life the hemotoxic venom burning in his flesh, but another event in what should have been his childhood gave snakes their full mythic and symbolic weight.

§

Some things you never get over. Some terrible memories enter the blood and become almost genetic, touching even the lives of people who have no recollection of them. My father was never reluctant to speak of his snake-bite. With little prompting he would re-create the incident in language plain and grim. But there was something worse that he would not talk about, not even with my mother, to whom he told nearly everything. It is an unruly and disproportionate matter, one of life's dark extravagances that can bring clarity to the lesser confusion of all our stories.

When he was eight, my father saw his older brother beheaded in a mine shaft in Colorado. I recently came across an old photograph of a handsome sandy-haired boy, tie slightly askew, double-breasted jacket buttoned. The boy is smiling a pleasant, slightly smart-aleck smile. The picture seems well composed and complete, but the right side has been neatly torn away. On the back in my father's hand is this inscription: "Geo. Powell Benson—Lawrence's older brother—killed in Colorado 6/30/14." When we were children, without drama or self-conscious fanfare of any kind, my father told my brother and me the story that contained few more details than the writing on the picture, told us once as if it were part of his obligation to the truth and never spoke of it again. The telling can't have taken five minutes, and all that I remember is Powell had been decapitated. No parent ever recovers from the death of a child. My brother may have been old enough to hear such a tale, and he has told me other things about the accident and its aftermath that I do not remember. My childish imagination could find nothing to hold, and the telling sank within me like a polished steel weight. But in my fifty-third year that picture of Powell coupled with the fears fathers have about their children brought it all back, and I have tried to visualize the grim details of what my father suffered.

The train ride from Louisiana in 1914 must have taken a week, but the boys had never been on a train, and they didn't care how long it took. Everything was fun. Grandmother was glad to see the country, relieved to have convinced my grandfather that the boys needed such a trip, that travel, as her mother had always said, was important to a child's education. She believed in expanding horizons literally. My grandfather grumbled some about their going and stayed home. Two days out of Kansas City, when the adventure had begun to flatten with the country, they caught sight of the Rockies. My father and Powell were thrilled, and Grandmother forgot the fatigue and the dust. She was convinced again that it was all worth it. The high country was delightful and exciting. Elevated vistas are not common in south Louisiana, nor is cool weather in June.

In Idaho Springs they rode a buckboard to their hotel. On the way Powell, who was eleven or twelve, saw a sign adver-

tising tours of a played-out gold mine. "Can we please go, Mother? We might find some gold. It wouldn't take long. Please." My father took his cue from his brother. "Can we? Please? It's a real gold mine! Let's go see. Please." Grandmother was sweet-natured and liked to indulge the boys, and they knew if they kept begging that she would agree. Two days later Grandmother finally said yes. They would go to the mine on the next to last day of the trip. The boys danced and whooped in the hotel lobby, and Powell frogged my father's arm.

The mine itself was not much of an attraction, but the idea of going down into the earth greatly appealed to the children. The shaft cut into solid rock was not neatly squared, but four huge timbers supported the shaft and provided a frame to which the elevator was attached. The vertical supports, banded and bolted to the dark rock, were squared at the top and every 50 or 60 feet down by horizontal beams. Between each set of horizontal timbers, the bare rock, cool and wet in some places, dry in others, came close enough to touch. The elevator itself was a heavy wooden platform with an angled iron railing around it at waist height. It was raised and lowered by an old steam generator that the boys could hear grinding and slapping even near the bottom of the shaft.

The day was brilliant and clear, and looking up as they descended, they could see the huge pulley wheel that moved the elevator, and beyond that the blue sky, a vivid piece of the bright world they had left. The shaft itself was dimly lit by a string of bare light bulbs that hung straight down on one side. The opposite side was either totally dark or shadowed and vague. The boys could tell when the rock walls were almost against the sides of the elevator by the sound of the clanking cable and the pulleys. Once or twice on the way down the platform even touched the rock. On the dark side the boys felt the fenders on the lower edge scrape by. They leaned over and tried to touch the cool rock. The elevator operator and tour guide was no more than seventeen, but he was growing a moustache and enjoyed his authority.

"Keep your hands off that rock," he said with worldly irritation. "This ain't the playground. Gold mine's no place for kids." He said "kids" with deliberate disdain. My father giggled at the young man's accent and poked Powell in the ribs. Powell grinned back, and both boys leaned out for the wall again, leaning this time further than they'd intended because the uneven rock had opened slightly.

"You'd best look to your kids, lady. They's ways to get bad hurt down here."

"Lawrence, keep your hands down," Grandmother said. "Powell, you boys settle down." The close rock walls and the deepening gloom made her a little anxious. She looked at her shoes and wondered if she had done the right thing.

It didn't take long to see the mine, nor did it take long to see why it had been abandoned. The boys' notion of finding gold lying about on the ground vanished in the dull gray horizontal tunnel. The guide walked slightly ahead with a coal-oil lantern, and Grandmother brought up the rear with another. The guide recited a string of dates dealing with the discovery of gold in the area and the construction of several of the local mines. His recitation on the mining process was as boring to the children as repetition had made it to him. Grandmother feigned interest so that the young man would not be offended, and she tried to ask questions she thought the boys might like to ask. The guide did not like having his speech interrupted by questions. It was hard enough remembering it all anyway. The boys made faces behind the guide's back and said they wanted to go. The elevator ride had been fun.

Going up, Grandmother spoke to the guide, not for his sake or hers but for the edification of her family, about the hopes and fears that had brought men to these dark places. My father said you couldn't pay him to work in a hole in the ground, no matter what, and he fixed his eyes on the growing patch of sky overhead. He and Powell reached out to see if they could touch the rock. The elevator operator had stopped paying any attention to them. The platform rose with surprising speed, and near the top, Powell leaned over the railing to see if he could still see the bottom. As he leaned out, the platform passed through one of the sets of horizontal supports near the top. The sudden appearance of the timbers startled him, and he pulled his head back for an instant, smiled at my father, and leaned out again. Just above those supports a rock shelf came nearly to the iron railing. Powell's head and neck were between the rock and the railing as my father turned to him mocking the guide. "This ain't the playground." He was still forming the words when the platform lurched and his brother's body fell at Grandmother's feet. The elevator rocked back and forth, its cable groaning as the platform settled. There was blood on my father's high leather shoes. He tried to look away, but his eyes could not find the sky. The charged air was full of his mother's screams.

In the summer of 1914 my father was eight. He was bitten by the rattler four summers later, but the two events became in some ways a single horror for him. He could never talk about Powell's death, for his own childhood was over from that moment. Four years later his sense of the uncertainty of life in the world was confirmed, and snakes became for him the embodiment of evil, darkness, and the promise of pain and loss, "evocative," as Faulkner says, "of all knowledge and an old weariness and of pariah-hood and of death."

§

From early childhood my brother and I enjoyed hunting and fishing, hiking and camping, and we occasionally encountered snakes without disastrous results. Our father encouraged our outdoor interests, taking us fishing, teaching us to shoot rifles and shotguns, and whenever we encountered snakes, he killed them all regardless of name or reputation. When we walked in the woods, we had to walk behind him, follow single-file in his footsteps. He was an enthusiastic fisherman most of his life, but he never forgot the danger that waited on the banks of blackwater bayous. We never saw him as reluctant to go fishing or to be in the woods, but he was minutely careful, and we sensed that even a simple fishing trip was an adventure, fraught with real peril. It was very exciting. He was uneasy though on family vacations. If we went to Biloxi or Gulf Shores, we were made fearfully conscious of the dangers of the undertow. Once in Tennessee, we went to Rock City, probably at my insistence. I was ten. I remember running to the edge of the scenic overlook where I was supposed to be

able to see seven states. I was stung and puzzled by my father's sudden anger. Neither of us enjoyed the afternoon. Mother described herself as a death-watch Mary because of her anxiety about her children's safety, but my father's sense of life's tragic potential was vivid if unspoken in painful and bloody memory.

My interest in snakes must have been a particularly heavy cross for him to bear. Early fascination he expected to pass, but as fascination deepened and began to take on the look of science, he must have felt haunted, must have wondered what he'd done to deserve such a strange child. By the time I was thirteen, I had determined to become a herpetologist. Friends with a fondness for amateur psychology suggested that my father's loathing of snakes actually caused my interest, that knowing and not fearing snakes was a way of asserting my adolescent independence, a more civilized and acceptable way than juvenile delinquency, with which I had only a slight brush. As a second son, they said, I revelled in the other side of my father's fear. However that may be, I was conscious only of the fact that herpetology offered me an opportunity to combine academic matters with love of the outdoors. I read every snake book I could get my hands on, my favorite being Raymond Ditmars's *Snakes of the World* (1931), which contained a gory and precise account of Marlin Perkins's reaction to being bitten by a gaboon viper. I learned the scientific names for all of the common southeastern snakes and for many of the exciting snakes from faraway places: the king cobra, the bushmaster, the Australian tiger snake. Being able to see a garter snake and say *Thamnophis sirtalis* was great fun of what I took to be a very mature sort.

A friend of my brother's got a job one summer working in the snake house in the Audubon Park Zoo, and I immediately volunteered to be his assistant—at no salary. That summer I spent nearly every day at the snake house. I helped clean exhibits, washed windows, replaced gravel and water in the smaller tanks. My position was never official though I acted as though it were, moving confidently and with studied disdain through squeamish crowds, going nonchalantly in and out of the door marked Poisonous Snakes. No Admittance. Employees Only. I am certain now that no one noticed, but the summer after my eighth-grade year I believed I ruled at least a portion of the world, and I remember being mystified that the girls I longed to date remained unimpressed. When school started again in September, I spent three or four afternoons a week at the zoo doing whatever needed doing, delighted for the chance to observe and enjoy the snakes.

Although the snake house was small, dim, and damp, we saw and cared for an interesting variety of snakes, including some snakes that were rare even in grander zoos. During nearly eighteen months of my devoted service, we received and displayed two African cobras, a large and ill-tempered western diamondback (*Crotalus atrox*), a Mexican moccasin, an anaconda, and two Russell's vipers. The diamondback never adjusted to captivity, and we were not able to keep him on display because he would not accept the presence of people, striking repeatedly at the glass at the front of his tank until his nose and lips bled freely. He refused to eat and for several months he was force fed. He struck the wire walls of the holding cages with such force that his fangs would occasionally get caught in the hardware cloth. We turned him over to one of the herpetologists at Tulane. The cobras, on the other hand, adjusted quickly to their circumstances. We received two adult African cobras from another zoo, and for a day or two in the holding cages they would "hood up" and hiss loudly when anyone walked by. But they soon ignored all human activity, and we opened the door to their cage casually to freshen their water or to drop in the rats they fed on. My recollection of the offhanded way with which I moved among dangerous snakes now makes me a little nervous. Youthful reflexes and some knowledge yield only an illusion of invulnerability. My world held no horrors to moderate my confidence.

The snake house also had a good collection of local snakes: canebrake and pigmy rattlesnakes, water moccasins and copperheads, king snakes, rat snakes, ribbon snakes, a mud snake, a hognosed snake, and an assortment of water snakes. My first nonpoisonous snake bite was from a large diamondback water snake. I was cleaning one of the walk-in exhibits. It was the job I liked best. I wore red-soled rubber boots with my jeans tucked down inside and brought in a garden hose with a trigger-controlled nozzle. Visitors were always impressed by seeing a person in a snake tank (a "pit" they liked to say), even if the snakes were nonpoisonous. I hosed out the enclosure and cleaned the glass front with a squeegee. The bigger the crowd, the more nonchalant I tried to be, reaching down to move knots of snakes out of the corners with my hands. All snakes have rows of recurved teeth for holding and swallowing prey, and the larger the snake, the larger the recurved teeth. Diamondback water snakes are not only large, but they are intractable and ornery. As I reached for the tail of one snake, another snake that I had ignored bit the back edge of my right hand. Because the snake's teeth are recurved, the best response is not to jerk your hand away, but to allow the snake time to free his teeth and pull back. The best response, however, takes a lot more self-control than I possessed. As soon as I felt the bite, I jerked my hand, dislodged several of the snake's teeth, and helped him make a rather spectacular if superficial wound.

I was embarrassed to have been so careless in front of an audience and pleased to have been publicly wounded. "No m'am, I'm fine. Thanks. It's part of the job. Really. I'll be fine." A week later at school, I pulled a perfect recurved tooth from my hand. It came out just like a splinter.

My activities in the zoo and as an aspiring herpetologist did not escape my father's notice, but he was generous and tried not to interfere. He had over the years built several cages to house the generations of hamsters that had once interested me, and he did not pay too much attention to the fact that these cages provided temporary housing for snakes, and he never saw the copperhead that escaped from one of these cages in our garage. I'm still not sure how it got out, but snakes are adept at improbable escapes. I never mentioned it. Now and then, in the arrogance of youthful knowledge, I presumed to instruct my father concerning his attitude toward snakes. One Saturday morning my mother woke me up saying, "Son, go see what kind of snake that is your father killed in the yard." I was angry before my feet hit the floor. Why couldn't they

have called me before he killed it? Why should I get up now? It wouldn't be any deader in an hour or two. Pulling on my jeans, I walked into the back yard still rubbing the sleep from my eyes. My father had put the hoe away and was spraying the insects on the camellia bushes. "Where's the snake?" I asked. He gestured with the hose on the stirrup pump toward the roots of the magnolia tree. There I found a black racer cut into three sections. The tail was lifting and turning slowly. "It's a blacksnake, *Coluber constrictor constrictor*," I announced. My father paid no attention. He didn't need to have his adversary named. "Dad, it's just a blacksnake. They eat mice. It's not poisonous. They're good to have around."

"No live snake's good to have around." He smiled, glanced at the three pieces of snake, and went back to spraying the flowers.

I said shit under my breath and started back to the house.

"Son, when I walked out past the magnolia, that snake came towards me," he offered in explanation to dignify my position.

I knew too much to let it pass. "Blacksnakes are aggressive like that sometimes. But he couldn't have hurt you. His pupils are round. He's nonpoisonous. You didn't have to kill him." My tone was smug and instructional.

"Who do you think you're talking to?" he said. Herpetology was no longer the subject. "I don't intend to get close enough to check the shape of his pupils. Anything I can't see from the end of the hoe, I don't need to see. And I don't need a lecture from you. Is that clear?" When I muttered yessir, he turned deliberately away and walked back to the flowers.

Occasionally I rescued nonpoisonous snakes from his wrath. In fact I thought he almost admired a green snake, *Opheodrys aestivus*, he watched me catch, but when I mentioned it to him later he just laughed. "They're all ugly as sin, every kind there is." Nothing I said or did ever saved a venomous one. The truth is I didn't try often. Canebrake rattlesnakes, *Crotalus horridus atricaudatus*, are not numerous over much of their range; and although I had seen others catch them, I had never collected one. My father had asked my brother and me to help him clear brush from the banks of a muddy creek that ran behind the house. It was August, and even though we had started before six in the morning, we had sweated through our shirts and jeans by seven. My brother said, "Let's sit a minute after I knock this privet down."

"You got it," I responded. I never had to be told twice to stop working.

As Larry swung his brush hook into the tangle of privet, we immediately heard a rattler buzz. We probed gingerly at the sound and discovered a twenty-four inch canebrake. When we prodded the snake, he assumed an impressive posture, raising the front third of his length in a striking loop and trying in vain to retreat against a wall of cut brush. He rattled continuously. My father had been twenty or thirty feet down the creek bank when the rattling started. He was moving closer as I started up to the house for my potato rake and a pillow case.

"Watch him. I'll be right back," I called to Larry.

As I moved passed my father, he caught my left arm in his left hand and spun me towards him. "No," he said.

"Daddy, I've never caught a rattlesnake. This one's a perfect size for the collection. We've got a medium tank that's empty now anyway." I pulled my arm free, and I started to the house. I took a step and saw him pick up my brush hook and move closer to the snake.

"Please, Dad," I said with more anger than supplication.

He looked from the snake to me. I took one step in his direction, and he raised his left hand with his index finger pointing up at my face. His own face was flushed. His lips did not move much.

"Not another word." Each word was louder than the one before.

I stopped. The first swing took the snake six inches behind the head and cut him neatly in two. The rattling continued until there were not enough connected muscles left to move the tail.

§

My father's feelings towards snakes never changed. As he grew older he was outdoors less, and encounters with snakes were unlikely. My enthusiasms moderated some, and time made both of us more good-humored about matters herpetological. In June after my freshman year in college, we went bank fishing on Bayou Lacombe on the north shore of Lake Pontchartrain, and I watched him kill a large cottonmouth that swam into the roots of a cypress tree near our stringer of bream. He went to the task with purpose and warmth, losing his cap in the process. As he flung the dead snake from the end of a heavy stick, he looked over as if he expected me to intercede belatedly on the snake's behalf.

"Protecting our fish?" I asked. We both laughed.

Coral snakes (*Micrurus fulvius fulvius*) are the rarest of Louisiana's poisonous snakes, or at least the most rarely encountered. They are slender and brightly colored little snakes which are sometimes mistaken for harmless snakes by those Ditmars calls misguided persons. In his *Field Book of North American Snakes* (1939) Ditmars describes the coral snake as "a very dangerous snake from combination of deceptiveness in appearance and actions and the high toxicity of its bite. . . . Of coral snake bites that the author has heard of, two out of three were fatal." The neurotoxic venom is, Ditmars writes, "drop for drop more lethal than that of a cobra." I had collected or observed nearly every species of native poisonous snake in my herpetological ramblings, but I had never seen a coral snake in the field. Only one of the experts I knew had ever collected one.

I fished a lot the summer after my freshman year in college, and on several Saturdays my father went with me. One morning, however, when I proposed fishing, he declined.

"You go on," he said. "Your mother and I are going to transplant a couple of those smaller camellia bushes, and I want to do it before it gets too hot."

"Do you need some help?" I asked without enthusiasm.

"No, thanks. Go fish. Just don't catch 'em all."

I was gone most of the day, but I have almost no recollection of fishing. When I pulled into the driveway around 4:30, Mother ran down from the porch to greet me. She was excited. I turned off the key and stepped out as she announced, "Your father's caught a coral snake!" And then, more modestly, "At least that's what we think it is. Come and see."

We walked around the house toward the garage. In the backyard my father was watering the bushes that he had moved while I fished. Near the door to the garage was a big glass jar with a piece of 2 × 6 lying across the top. In the bottom of the jar there was some leaf litter and a couple of pieces of moss. I knelt down to look closely.

"I figured if there wasn't enough air in there with that board on top, to hell with him," Daddy said as he turned off the hose and walked over.

There was a coral snake in the jar, and for several minutes all I could do was look. "Where was it? Who saw it first? What did you say? How on earth did you get it in the jar?" The questions rushed out. My father smiled.

"I saw it when I got ready to dig out that second bush. It was just there, inside hoe range too. I was ready to smack him, but your mother stopped me. She had just seen the snake and said, `Lawrence, wait. Don't kill it. I think it might be a coral snake. They're rare. And very poisonous, Bob says.' You can imagine how impressed I was."

"Anyhow, your mother made me keep the damned thing at bay while she went looking for one of your books. It took her forever, but then she appeared with a picture and stood there looking first at the book then at the snake. `Yes,' she concluded, `it's a coral snake all right. I think we should try to catch it.' I don't recall agreeing to anything, but she found that jar in the garage."

"Your father was magnificent," Mother offered. "He looked like he'd been catching coral snakes all his life. I put the jar down and your father lifted him on the shovel and dropped him in and then shoveled that moss and stuff in for him."

"For him nothing," my father said. "On him sounds better. I thought it might kill him." He smiled and touched my shoulder.

While I listened to this remarkable narration, I lifted the jar and turned it around to look at the small bright snake. My father never looked at the jar, showed absolutely no interest in its contents. Throughout the account of this adventure that he never could have imagined, his tone was cheerful and matter-of-fact. But he only looked at me, occasionally at Mother when she offered some detail or correction, and every now and then he looked off as if he were listening to something faint and far away that only he could hear. That evening he looked tired and old, but he was relaxed, and went to bed earlier than usual and slept soundly.

§

It's been more than seventy years since Powell was killed and my father was bitten, and I have tried to find a place in memories that are not mine. I have tried to imagine the horror of an elevator ride out of a gold mine I have never seen. I have tried to look at snakes as he saw them all his life without trying: still bright with a child's fear and bewildering pain. Some things are clear now, but much of what I remember puzzles me. I also know that I have said and done much that puzzles my sons.

Daddy caught the coral snake when he was a year or so younger than I am now. My children have played with and learned a lot about snakes, and my wife has been a patient if not an enthusiastic home-zoo keeper for thirty years, but when I passed fifty I grew uneasy about a number of things. Age brings caution, and I am more or less constantly aware of what might at any moment be lost. I have never worried much about my sons being harmed by poisonous snakes. I worry because they live in a world more dangerous than the Honey Island Swamp ever was, a landscape of burnt-out gold mines, tawdry and dark places that promise what they cannot pay. When I can deal with threats directly, I am grateful. Recently an old friend and I were walking with our children on his land along the Alabama River. We walked through the open river-swamp woods in single-file, at my suggestion. Jack led the way, his son and daughter behind him followed by my sons and me. I have always walked in the woods paying as much attention to the ground as to anything else, an old habit of my father's solidified by my years of snake collecting. We saw a few deer, flushed a wild turkey hen from her nest, and watched pileated woodpeckers and a variety of songbirds. We were nearly back to the truck when I looked ahead and noticed that Jack and his daughter had just stepped over, and his son was about to step on, a thirty-inch rattlesnake. I lunged by my two sons and grabbed Jack's ten-year old and pulled him back.

"Snake," I said loudly.

"Where," Jack said.

When I pointed to the snake coiled in the leaves, Jack said, "Damn. I stepped right over him. So did Liddell." He shuddered. "Good eyes." The snake had not moved since I first saw it. It neither rattled nor attempted to escape. I shot it once with a small .38, and watched as it knotted and rattled. I told myself that I was protecting the children.

§

I have an old black-and-white photograph of my father steering an outboard motor on a cypress skiff down Bayou Lacombe. He is laughing and looks young and confident. At forty-seven he could enjoy some of the things he had missed. For a time after the accident in Colorado, his mother, nearly mad with grief and guilt, held seances in the dining room to bring Powell back. Night after night my father heard his parents pleading with the dead, terrified that his brother's mangled body would move through the house. Having come out of the gold mine alive, he also felt guilt and saw reproach in his mother's eyes. The year before he was snake-bit he was sent away to military school. The grace and courage with which he lived into his seventies are apparent in his laughter and most vivid for me in his improbable encounter with the coral snake—a reckless act of love, unimaginable until performed. When he died two months before his seventy-fifth birthday, he smiled like a house-bound boy given permission to go and play.

Bull. Chicago Herp. Soc. 35(7):162-163, 2000

Distributional Records of Anurans in Chihuahua, Mexico

Julio A. Lemos-Espinal[1], Hobart M. Smith[2] and David Chiszar[2]

Abstract

One hundred seventy-seven specimens of 12 species of anurans are recorded from various localities in little-known areas in Chihuahua, Mexico.

Among herpetological collections made mostly, with a few specified exceptions, during the summer of 1999, all in the state of Chihuahua, Mexico, by JLE, are 177 specimens of anurans representing 12 species. Inasmuch as most are from areas rarely or never before explored by herpetologists, we here record that material. Because of the remoteness of most collecting sites, we provide coordinates for them, determined by GPS, and altitudes. JLE field numbers are cited on all specimens, which ultimately are to be shared more or less equally between the University of Colorado Museum and the collections of Unidad de Biotecnología y Prototipos of the Escuela Nacional de Estudios Profesionales Iztacala of the Universidad Nacional Autónoma de México.

Bufo cognatus Say, Great Plains Toad. JLE 3700, an adult female, is from Polvorillas (=Piedras Encimadas) (28°47′ 36.2″N, 104°13′30.8″W), 1440 m, 28 July. Sixty-six transformlings (JLE 3092, 3094-3102, 3104-5, 3107-8, 3110-24, 3127-31, 3133-4, 3136-40, 3142-3, 3146-68) were taken from a large reservoir at Ranch Ojo de Enmedio (31°9′4.2″N, 106°22′31″W), 1410 m, 10 November 1998. All measure 10 mm or less in body length, most have no more than a stub remaining of the tail, but numerous tadpoles have a tail longer than body. Most were identifiable by the large dark spots on body, but those too small to show the spots possessed the distinctive dark spot below eye, and relatively few, low, incipient warts that characterized all individuals. They were found in company with transformlings of *Bufo punctatus*.

These localities lie within the assumed range of the species (Krupa, 1990), although there are few records for eastern Chihuahua.

Bufo debilis insidior Girard, Western Green Toad. A 26 mm subadult with a tightly reticulate dorsal pattern (JLE 4265) was found crossing the road 23.7 km NW Agua Zarca (29°55′18.7″N, 105°51′9″W), 1400 m, 31 August. A 12 mm transformling (JLE4220) from a pond at Rancho La Paloma (29°47′42.4″N, 105°20′24.9″W), 1660 m, 28 August, is also referred to this species. Both localities lie within the recorded range of the subspecies (e.g., Conant and Collins, 1998: 525).

Bufo microscaphus mexicanus Brocchi, Mexican Spadefoot Toad. A single adult (JLE 4015) is from near Guachochic (26°57′44.6″N, 107°8′50.3″W), 2509 m, 26 July. The locality falls well within the known range of the subspecies as mapped by Price and Sullivan (1988).

Bufo punctatus Baird and Girard, Red-spotted Toad. Eleven transformlings, all 11–13 mm in body length, were taken from a large reservoir at Rancho Ojo de Enmedio, at the base of Sierra de Samalayuca (31°9′4.2″N, 106°22′31″W), 1410 m, 10 November 1998. They were taken in company with numerous transformlings of *Bufo cognatus*, from which they all differed in lacking any tail except for a short stub, lacking large spots on body, lacking a sharply distinct subocular dark spot, and having more numerous and better developed incipient warts.

One 16 mm transformling (JLE 4162) and 22 smaller transformlings 10–12 mm S–V (JLE 4204) are from Río San Carlos, Sierra Azul, Manuel Benavides (29°6′52.5″N, 103°55′37.6″W), 1200 m, 27 August. A 41 mm subadult (JLE 4248) is from Rancho La Bamba (30°3′52.5″N, 105°19′47.9″W), 1510 m, 29 August. JLE 3758, 3778, 51 and 47 mm S–V, are from Ejido Ojo del Carrizo, 82 km N Coyame (29°58′27.5″N, 105°15′45.8″W), 1459 m, 12–13 July; one was found under a log in town, the other next to a stream. All localities lie within the recorded range of the species, although there are few records for eastern Chihuahua (Korky, 1999).

Bufo woodhousii australis Shannon and Lowe, Southwestern Woodhouse's Toad. A single 21 mm juvenile (JLE 2169) was taken at a large reservoir on Rancho Ojo de Enmedio, at the base of Sierrs de Samalayuca (31°9′14.7″N, 106°27′32.9″W), 1336 m, 8 October 1998. A light vertebral stripe fails to reach the head, and dark spots are present on abdomen and sides of chest. This locality lies a few km south of the range in the center of the state depicted by Conant and Collins (1998).

Gastrophryne o. olivacea (Hallowell), Great Plains Narrowmouth Toad. A single adult (JLE 4226) was found under a fallen yucca, shared with a *Sceloporus belli* and two transformling *Scaphiopus couchii*, at Rancho El John (29°48′11.9″N, 105°22′28.5″W), 1560 m, 29 August. The locality falls well within the known range of the subspecies (e.g., Nelson, 1972).

Hyla arenicolor Cope, Canyon Treefrog. Three specimens were taken, one (JLE 3960) 8.1 km S Creel, road to Cabañas Batosarachic (27°42′6.9″N, 107°35′6.1″W), 23 July, and two (JLE 4013-4) near Guachochic (26°57′44.6″N, 107°8′50.3″W), 2509 m, 26 July. Both localities are within the known range of the species (e.g., Conant and Collins, 1998: 538).

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Hyla eximia wrightorum Taylor, Wrights' Mountain Treefrog. Seven specimens were taken, all (JLE 3928-9, 3955-9) from 8.1 km S Creel, road to Cabañas Batosarachic (27°42′6.9″N, 107°35′6.1″W), 23 July, in company with *H. arenicolor*. Tanner (1989a) recorded the subspecies from several localities in the same vicinity.

Rana berlandieri Baird, Rio Grande Leopard Frog. Two adult females, JLE 3757, 3768, were found in a stream passing through Ejido Ojo del Carrizo (82 km N Coyame) (29°58′27.5″N, 105°15′45.8″W), 1459 m, 12 July. Although this record falls within the projected range in eastern Chihuahua for this species, as depicted by Hillis (1988), apparently on the basis of suitable habitat, we are aware of no previously published precise localities.

Rana catesbeiana Shaw, Bullfrog. Two specimens (JLE 2169) were taken at Rancho Ojo de Enmedio at the base of Sierra de Samalayuca (31°9′14.7″N, 106°27′32.9″W), 1336 m, 8 October 1998. One is a large transformling with well developed legs, both fore and aft, mouthparts lost, 42 mm S–V, tail 60 mm. The other is a tadpole 29 mm in body length, with no more than nubs for the hind limbs, and no distinct markings on the tail fins (as would be expected in tadpoles of *R. berlandieri*). These were found in company with a young *Bufo woodhousii* and tadpoles of *Spea multiplicata*.

Tanner (1989a) noted records of this species from four localities in northwestern Chihuahua, and Stebbins (1951) recorded it from Yoquiro and the Barranca del Cobre. Our present records are from farther south and east than any others.

Scaphiopus couchii Baird, Couch's Spadefoot. A 57 mm female (JLE 1571) was taken from an ancient Indian hole on Cerros Colorados (31°9′4.2″N, 106°22′31″W), 1270 m, 3 July 1996. Two 13 mm transformlings (JLE 4227-8) were found at Rancho El John (29°48′11.9″N, 105°22′28.5″W), 1560 m, under a fallen yucca, in company with a *Sceloporus undulatus* and *Gastrophryne olivacea*. Both have the elongate, black inner metatarsal tubercle characteristic of the species. Thirty-one transformlings (JLE 4088) are from Polvorillas (=Piedras Encimadas) (28°47′36.2″N, 104°13′30.8″W), 1440 m, 6 July; they are 11–16 mm in body length, lack a tail except for a stub, and all except the smallest have a blackened, elongate outer metatarsal tubercle. All localities are well within the known range of the species (Wasserman, 1970).

Spea multiplicata stagnalis Cope, Desert Spadefoot. Eighteen tadpoles (JLE 2169) were taken from a large resevoir on Rancho Ojo de Enmedio, at the west end of Sierra de Samalayuca (31°9′14.7″N, 106°27′32.9″W), 1336 m, 8 October 1998. They were taken in company with *Rana catesbeiana* and *Bufo woodhousii*. The body in all is 16–20 mm in length, and short hind legs are present in all. There is no cusp on the upper beak, and no notch in the lower.

The subspecific allocation is on geographic grounds, following Tanner (1989b), inasmuch as the defining characteristics of the subspecies are evident only in adults.

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Bull. Chicago Herp. Soc. 35(7):163, 2000

Erratum: Degenerated Science . . .

Dean Ripa

Please note a correction to "Degenerated Science: A Critique of the Proposed New Laws Protecting Venomous Snakes in North Carolina, and a Request for Science and Factuality in the Evaluation of Animals for the Endangered Species Act" by Dean Ripa, which appeared in the *Bulletin of the Chicago Herpetological Society* 35(5):93-134, May 2000. On page 119, column 2, line 4 of the second full paragraph, "97,000 linear feet" should read "97,000 linear miles."

Bull. Chicago Herp. Soc. 35(7):164, 2000

An Attack on a Human by a Green Anaconda (*Eunectes murinus*)

Marcelo R. Duarte[1], S. M. Almeida-Santos[1] and J. L. Cardoso[2]

Large constricting snakes are potentially dangerous to people due to their size and strength (Branch and Hacke, 1980; Murphy and Henderson, 1997; Rivas, 1998). *Eunectes murinus* is a species with a wide geographic distribution in South America (Henderson et al., 1995). This snake is rarely seen away from water and it is found in a great variety of aquatic habitats (Strimple, 1993). It has been considered the largest snake in the world (Murphy and Henderson, 1997). During 33 years (1966–1999), the Hospital Vital Brazil in Instituto Butantan, São Paulo, Brazil, recorded four cases of bites caused by *Eunectes*, from a total of 79,699 bites registered. Three of them happened in captivity and the victims were bitten in the hands while handling the snakes.

In this note we describe an attack against a human by *E. murinus*. The 38-year-old man (75 kg, 1.70 m) had been fishing for approximately 5 minutes, in waist-deep water, on the evening on 27 July 1999, near a river bank in the city of Pereira Barreto, state of Sã o Paulo, Brazil (20°38′S, 51°07′W). Suddenly a female snake (310 cm snout–vent length, 50 cm tail length, 15.2 kg body mass) emerged from the water and bit the man on the thigh, entwining his legs. The victim called out for help and his friends grabbed the snake body releasing the snake jaws from the leg. The patient suffered several tooth punctures on the left thigh, which resulted in discrete edema. In Brazil field attacks by *E. murinus* have been recorded since 1852 (Bates, 1979) and more recently an attack was reported by *E. notaeus* (yellow anaconda) (Strüssmann, 1997). This attack may have been another case of "mistaken identity" similar to that described by William W. Lamar in 1978 in the field against a biologist (see Murphy and Henderson, 1997). Although fatal attacks caused by *Eunectes* have never been registered in the scientific literature, one could never predict what would have happened in this case if the victim had not been helped, since some predatory attacks have been attributed to this species in Venezuela (Rivas, 1998).

Acknowledgment

We thank Dr. M. G. Salomã o for comments and suggestions.

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Bull. Chicago Herp. Soc. 35(7):164, 2000

Erratum: Keys to Understanding the Bushmasters (Genus *Lachesis* Daudin, 1803)

Dean Ripa

Please note the following correction to Table 2, page 74, in "Keys to Understanding the Bushmasters (Genus *Lachesis* Daudin, 1803)" by Dean Ripa, which appeared in the *Bulletin of the Chicago Herpetological Society* 34(3):45-92, 1999.

Characters	*Lachesis muta*	*Lachesis stenophrys*	*Lachesis melanocephala*	Darien bushmaster
Vertebral ridge height at midbody[1]	8.7 ± 0.92 (8–10) N = 50	11.5 ± 1.30 (10–13) N = 40	11.2 ± 1.40 (10–13) N = 25	11.7 ± 1.37 (10–13) N = 6

1. Measured from the ridge dorsum to the middorsal surface of the zygosphene of the vertebra at midbody, accomplished by inserting a needle between the neural spines and measuring the depth of penetration. All measurements were then reduced by 4 mm to account for epidermal thickness.

Bull. Chicago Herp. Soc. 35(7):165, 2000

Book Review: *Rattlesnake: Portrait of a Predator* by Manny Rubio 1998. 272 pp. Smithsonian Institution Press. $39.95

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Manny Rubio, forever linked with Carl Kauffeld and the Staten Island Zoo, has given us a book, *Rattlesnake: Portrait of a Predator*, that fills a void between the Peterson field guides and Laurence Klauber's epic work.

Anyone with even a passing interest in these reptiles will find this book "fascinating—can't put it down" reading. From undisputable facts presented in a different light to newly researched ideas and even some strange theories this book will hold your interest.

Those who have a passion for these beautiful but maligned and misunderstood animals will be referring to these pages for years to come. Not only for reference but to enjoy the creativity captured within its covers. The photographs by the author are shockingly lush and beautiful. Over 250 such pictures are to be found, each one somehow more spectacular than the last. More than 80 living species and subspecies of rattlesnakes are pictured.

Unusually colored, patterned and hybrid rattlesnakes are discussed and explained. Mr. Rubio's insights on rattlesnake roundups and religious serpent handling cults are windows into worlds unfamiliar to most of us.

William S. Brown says it well in his foreword to the book: " . . . topics as diverse as the evolutionary origin of rattlesnakes, their sex and growth, their internal functions, their venom and bite and their role in the environment—all based on recent scientific findings—are covered in a relaxed readable style. This book will appeal to its two intended audiences, amateur naturalists and technical readers."

Rattlesnake: Portrait of a Predator, 272 pages, 14 chapters, appendices of common, scientific and Spanish names of recent rattlesnakes and a partial list of North American professional, avocational and regional herpetological societies. A book that deserves to be read and used.

Bull. Chicago Herp. Soc. 35(7):165-167, 2000

HerPET-POURRI

by Ellin Beltz

Gecko gloves

"Scientists analyzing the microscopic hairs on gecko feet have found that the lizards use a sort of molecular attraction to climb glassy surfaces, not suction or chemical stickiness. . . . The researchers are now trying to develop synthetic gecko feet that can be used on search-and-rescue robots to climb sheer walls, as well as a dry, self-cleaning glue that would work underwater or in a vacuum. . . ." Geckos have about a half million setae (or adhesive hairs) on each foot. They "roll the hairs . . . onto the surface and peel them off, like tape, as they walk. The toes curl and uncurl like blow-up party favors." It is possible that a form of molecular attraction called "van der Waals force" is responsible for the adhesion, but research continues to find just how this all works. [*Science*, June 9, 2000 (me!); *Democrat-Gazette*, June 10, Bill Burnett; *Los Angeles Times*, June 15, Marcia Rybak; *Chronicle of Higher Education*, June 23, from Rob Streit] For cool photomicrographs, check out *Natural History* [July-August 2000, from Eloise Beltz-Decker].

Lizard held up Queen of England

Queen Elizabeth was planning to visit Canberra, Australia, until authorities there realized that their runway is too narrow for the Queen's plane; and that with an endangered lizard living adjacent to the existing runway, they could not widen it. So the Queen landed in Sydney instead. [March 7, 2000 *Morning News*, from Brian Wettekin and *Honolulu Advertiser*, from G. E. Chow]

Controlled burn burns NPS

By now, everyone knows that it was a "controlled burn" in a remote area in high winds which ignited a fire which burned part of the Los Alamos facility. Not to do Bambi-biology here, but there were effects on the wildlife due to this massive blaze, and probably damage to Native American sites within the burned area, too. One biologist suggested that smaller animals including reptiles would do okay, but only if they were buried or underground when the fire swept over them. "Some habitat might be lost for the Jemez Mountain salamander, listed by the state as a threatened species. The salamander lives mostly underground except during the summer, when it emerges during monsoons to inhabit damp lots. If fire turns the logs to ashes, "when the salamanders reappear when it rains, they can't find habitat," said game department herpetologist Charles Painter. [*Albuquerque Journal*, May 14, 2000 from J. N. Stuart] Curiously, salamanders are doing very well in areas flattened by Mount St. Helens' last eruption in May 1980 and biologists were afraid that the soft and squishy would never recover there. The salamanders, fortunately, do not read professional journals. Having that much more free time permitted them to migrate into areas (by means of underground burrow systems maintained by other species) which were

completely devastated by shock waves, ash falls, mudslides and other volcanic effects.

Are the 90s over yet?
A woman in San Jose, California, received an "animal nuisance" citation from animal control officers because of noisy Pacific treefrogs mating in her backyard goldfish pond. The woman said, "The first day I thought I was funny. The second day I got angry. By the third day I got paranoid. . . . What if they come and pour chemicals in the pond?" Her husband made 90 minutes of recordings and plans to market them if they truly need a "legal defense fund." [*North Virginia Daily*, March 21, 2000, from Bryan McCarty]

Ga-Torah?
Hamat Gader, Israel, has the world's only 'gator farm with ancient Roman ruins, hot springs, and a spa. Described as "a kitschy theme park on the Golan Heights," it's ranked among Israel's "stranger tourist attractions." But it may soon be part of Syria; or it may stall settlement talks altogether. Local people said, "we're ready to let the alligators free in the parking lot before we let this place go." A keeper said, "My snakes are more reliable than any of these politicians." [*Kansas Star,* March 12, 2000, from Tanya Holthouse]

Where have all the critters gone?

• A photo from the *Orlando Sentinel* shows " . . . a scene that looks like something from an Indiana Jones movie. Thai customs officials count snakes . . . in Bangkok after 900 baskets containing 13,500 snakes were seized from a boat off the Gulf of Thailand before being smuggled into Taiwan. [April 22, 2000, from Alan Rigerman and Linda Hauser]

• "Two hundred Jackson's chameleons smuggled into the U.S. illegally were nursed back to health at a Culver City, [California] wildlife sanctuary. . . . `These chameleons were smuggled in burlap bags and the majority died in transfer,'" said a museum worker. "She said the chameleons were given food, water and shelter, and the facility's museum has added a baby ward for newborn lizards." They were seized in March by U.S. Fish and Wildlife but no other details of the bust were available. [*Los Angeles Times*, April 13, 1999, from Marcia Rybak]

• A giant oil spill "practically" killed the Surui River and adjacent mangrove habitats in Brazil. A pipeline at the federal petroleum facility, Petrobras, spilled more than 300,000 gallons of crude oil into the bay. Beaches at a popular tourist resort were covered in black muck and spawning grounds of fish and near shore birds were awash in crude. The spill widened out over 16 square miles, while workers tried to clean and contain it with rakes and pitchforks. Petrobras accepted responsibility for the accident; it remains to be seen how the ecology can recover. [*Columbia Daily Tribune*, Columbia, MO, January 22, 2000, from Oliver J. Sieckmann]

Arribada!
"Tens of thousands of endangered [olive] ridley turtles have returned to the shores of eastern India to nest. Wildlife officials said that at least 45,000 of the huge olive-green reptiles have returned to Gahirmatha Beach on the Bay of Bengal in Orissa state . . . [which] was damaged by a supercyclone that hit the area last October. [*Honolulu Advertiser*, March 19, 2000, from G. E. Chow]

If only it were true!
"Along with assorted fish species [in the new display at the Shedd Aquarium] Amazon Rising shows off Cayman [sic] lizards, 3-foot-long [sic] poison arrow frogs, tarantulas and colorful exotic birds. It's a departure for an aquarium to feature these nonfish, but [a Shedd worker] said it's essential to the idea of connectedness. [*Chicago Tribune*, June 9, 2000, from Ilene Sievert]

New! KAZORP mineral water
Researchers found high levels of many common medications including hormones, antidepressants, aspirin, ibuprofen, vitamins, cancer and seizure medicines and others in European rivers and near shore areas. Some blame these medications for mass deaths of aquatic organisms while others have documented the buildup of chemicals from musk perfumes and suntan lotions in other sea life. [*Tacoma News-Tribune*, May 12, 2000, from Marty Marcus]

Nuclear winter gets dryer
Just to show how little we know about our own planet, researchers working with actual satellite data (not a model on a computer) found that smoke from forest fires actually suppresses rainfall. This has great impact on rain forest areas where clearing is accompanied by burning. [*Science Forum*, October 18, 1999, from Gary Kettring]

Non-leaping lizards
"As many as 200 massive, fake lizards will soon be stationed throughout the city [of Orlando]. But rest assured, these won't be your garden-variety lizards . . . decorated by local artists . . . in a project called LizArt . . . to promote downtown and the arts. . . . The project is modeled after Chicago's `Cows on Parade.' . . . The first . . . lizards will be on the loose in October, . . . up for a year." [*Orlando Sentinel*, May 13, 2000, from Bill Burnett]

An ounce of prevention?
Mysterious alligator deaths in Lake Apopka and Lake Griffin don't seem so mysterious anymore. In an April 30, 2000, *Orlando Sentinel* article, everyone seems to agree that the deaths are due to a toxin produced by algal blooms which take up to 95 percent of Lake Griffin's biomass. The algae bloomed because of an excess of phosphorus, which washes off adjacent farm (or former farm) lands and into the shallow, mud-bottomed lakes. Curiously, this article mentions two water-treatment efforts, one on each lake. At Lake Griffin last year, researchers dumped tons of phosphorus into the water to test the marsh. At Lake Griffin, more alligators died than in any previous year—by more than double. No one in the article seems to have plotted phosphorus input versus alligator deaths, but it would be an interesting project. A sidebar had a chronological history of the environmental insults to both lakes

from the 1970s to the present. [from Bill Burnett]

Mourning their neighbor

A gator regarded as part of the scenery at a Safety Harbor, Florida, condominium recently went for a swim in their pool. Someone called the state and the animal was taken away; even though by the time the trapper showed up, the 'gator was within feet of the swamp where he lived. Maintenance workers had captured him and were coaxing him home. One said, "It was a bad day at Sandal Cove." [*Orlando Sentinel*, May 15, 2000, from Bill Burnett]

Might makes right?

Fisherman in Ecuador's Galapagos Islands kidnapped 300 baby sea turtles, demanding increased hunting privileges on the adults. Last year sales reached $3.5 million, in a one-month season. The Charles Darwin Foundation warned that the turtles are still in danger of extinction and criticized jeopardizing the babies survival for their cause. [*Tacoma News Tribune,* May 15, 2000, from Marty Marcus]

Urban legends

• Brian Wettekin writes: Last year, I sent you a story about how to deal with an anaconda attack. I just found another description of how to deal with a python attack in *Tales of Giant Snakes* by Murphy and Henderson (p. 131). It is quite obvious that this is where the anaconda story originated. They quote Rose, so the story has had years to be changed to the version I submitted. I just thought you may like the update!"

• From Louis A. Somma comes a reprint from the *Proceedings of the Academy of Natural Sciences of Philadelphia* (149: 109-114, 29 January 1999) which straightens out a taxonomic urban legend I've been wondering about; but leaves open several questions of how it came to be. The following is entirely taken from the article. It started when a popular writer picked up a statement from a popular paleontologist to the effect that Edward Drinker Cope (honored in Cope's gray treefrog, among many other species) gave his bones to science so that he could be the "type specimen" of *Homo sapiens*. Then the popular writer took a skull labeled as such around to various places and took photographs which are all in his book (ugh!). The legend got on the Internet and (whoosh!) made it around the world in three days. However, it's hooey. There is no way for Cope to be the type specimen of *Homo sapiens*. That honor belongs to Carolus Linnaeus (lectotype—*Homo sapiens*), of Uppsala, Sweden. The specimen is on deposit in the cathedral there, properly labeled and present if needed. However, there is no shortage of *H. sapiens* specimens, so it is unlikely that Linnaeus the fossil will ever be needed for examination. Beware media science!

Urban reality

• An auto mechanic in Kalamazoo, Michigan, received a surprise when he found an 8-foot boa constrictor in the dashboard of the car. [*Chicago Tribune*, June 22, 2000, from Claus Sutor]

• A jazz violinist who lives on the Upper West Side of Manhattan found a snake's shed skin in her sheet music. However, she doesn't own a snake and no one knows how an unknown snake got into her apartment. When she first found the skin, she thought it was some bubble wrap, but as it lay on the counter she said to herself that it looked more like a snakeskin. She said, "I thought I was losing it, that I had been practicing way too long." The Bronx Zoo identified it as a boa constrictor from the shed. The police said to call them if it came back; the super had the apartment searched to no avail. Some of the "experts" said that it could be a female which would lay eggs. Contributor Mike Dloogatch pointed out that boas are live bearers. [*New York Times*, June 7, 2000]

He's kidding, ok?

Jake at the *Orlando Sentinel* writes about Florida frogs: What a species. . . . Consider what the frog has going for it. Its one natural defense is to sit quietly, being just as green as all the stuff around it. . . . If the frog wants to get anywhere, it has to jump up where it can be seen, and if it sits still, it feels compelled to holler for hungry things to come and get it . . . [and] nature gave it legs that taste good. . . . They get into the screened enclosure . . . they try to hide on our windows. More-or-less green animals, fourteen acres of more-or-less green property, and they crawl up on the plate glass and think if they sit still, they won't be seen. Haven't any of them ever asked the other frogs if this works? Don't they wonder why frogs don't come back from in there? How long have they been sharing this planet with us? Don't they know about humans yet?" [no date, sent by Bill Burnett]

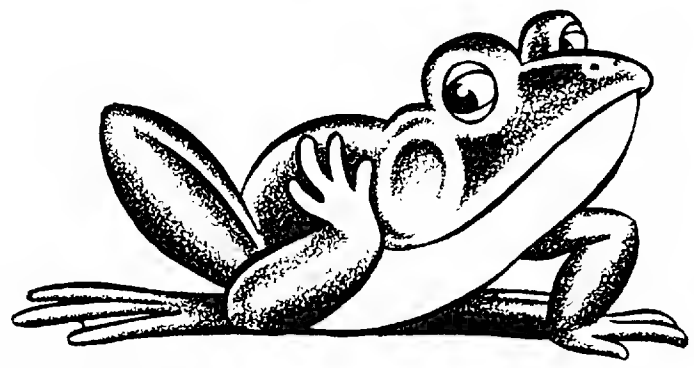
Thanks to everyone who contributed this month!

And to Ray Boldt, Alan Rigerman, Bradford Norman, Nathan Tenny, Dominic Novielli, Andy Via, Emerson Sy, Vicky Elwood, Emily Forcade (a poem in the *New Yorker*!), Oliver J. Sieckmann, Ardis Allen, Ernie Liner, Marty Marcus, J. L. Lambert, Ed Clark, Carla and Miguel Ochoa, George M. Patton, and Martha Ann Messinger. You can contribute, too! Take whole pages of newspaper and magazines containing articles of interest and mail to: Ellin Beltz, 1647 N. Clybourn, Chicago, IL 60614-5507. Be sure your name is on each piece, it can get quite confusing in here on "column day."

Bull. Chicago Herp. Soc. 35(7):168-170, 2000

The Tympanum

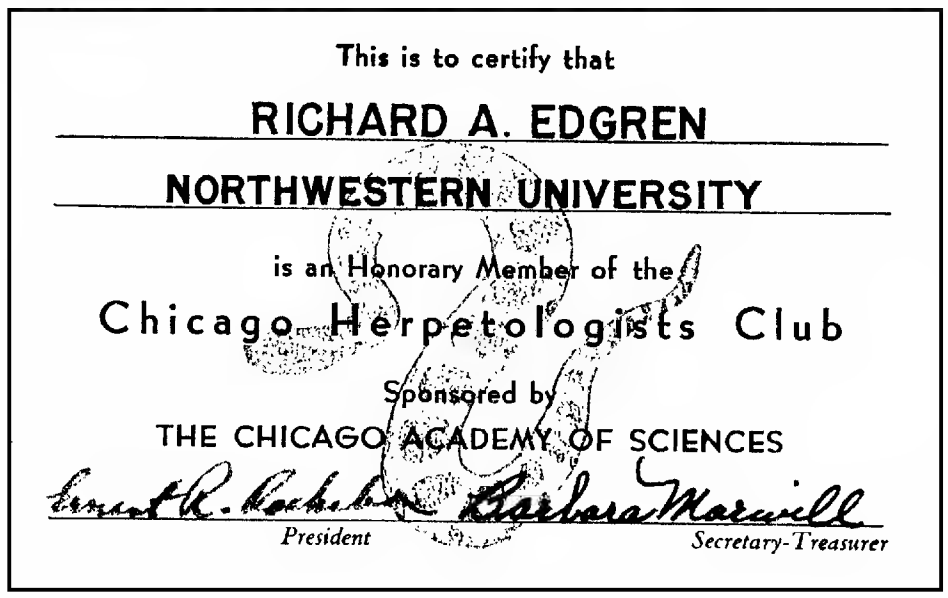
Dear Editor:



I am delighted with my little note on Kirtland's snake, and particularly with the cover photograph by Dr. Barten. In view of the fact that this is my first herpetologically-oriented publication since I reviewed the turtle-algae problem for the *Turtle and Tortoise Journal* in 1968, I sort of feel as though I am back home after 30 years.

In the *Bulletin*, which I read cover-to-cover, I especially enjoyed Bob Herman's letter; it reminded me of the time in the mid-1930s when my father saw an announcement in the *Daily News* of a meeting of the old Chicago Herpetologists' Club with Karl P. Schmidt speaking on adaptive radiation in snakes. Although neither of us had any idea what adaptive radiation was, we attended the meeting, met Schmidt and I was hooked. Through the old Club I met Howard K. Gloyd, surely my mentor although that term was not used then as commonly as it is now, Clifford H. Pope, Walter L. Necker and E. G. J. Falck. It was clearly my association with these people and the Club that turned me into a scientist. In actuality Gloyd was my research advisor, although Orlando Park, an entomologist, of NU was my official major professor. So Herman should be careful; he may be producing a 21st century biologist.

I . . . enclose a . . . copy of my old Chicago Herp Club membership card, which may amuse you. . . . Sincerely,
Richard A. Edgren, Ph.D., 50 Oakhaven Way, Woodside CA 94062.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Salmonella and Its Potential Impact on Herpetoculturists

The subject of Reptile-Associated Salmonellosis (RAS) is something that has come into the public consciousness and is being scrutinized by authorities. Public health officials all over the country are calling for restrictions on the possession and sale of reptiles. Several persons die every year from RAS, and several thousand more cases resulting in illness are reported annually, according to the CDC website on Zoonotic Disease. This represents 7% of all *Salmonella* cases, most of which are contracted from food or farm animals. For more information on this, check out the RAS sections on the Medical Herpetology Website: http://www.xmission.com/~gastown/herpmed/med.htm. Opportunistic legislators intent on furthering their political careers have taken up the hue and cry, and now a number of states have passed, or are in the process of drafting, legislation that requires *Salmonella*-testing of reptiles in commerce, or prohibits the possession of reptiles that are *Salmonella*-positive. Illinois introduced three bills this year that address RAS (regulatory overkill!). One of them would prohibit the possession of *Salmonella*-positive reptiles and define them as "dangerous animals." For a discussion of this issue, see the Chicago Herpetological Society's website: http://www.chicagoherp.org. Any legislators or public officials attempting to establish similar restrictions on meat products or farm animals would be publicly lynched and impaled on meathooks by the powerful livestock industry, and sent down a processing conveyor to be transformed into dog food. Clearly, we are regarded as a powerless minority that can be stepped on for political gain by parasitic public officials attempting to justify their jobs and appear effective to a hysterical segment of the population that is incapable of critical thinking.

A South Carolina academic herpetologist recently testified at a regional herpetological conference that his state has a law that requires that any turtles sold in that state to test negative for *Salmonella* for three consecutive tests at two-week intervals. Any that test positive may not be offered for sale, and must either be kept by the owner or euthanized. He went on to say that the state is working to extend this to all other reptiles. He explained to the audience why he considered this to be model legislation that other states should adopt. He also stated that the recent popularity of reptiles has resulted in a proliferation of herp hobbyist clubs that conduct public exhibits that put the public at risk of RAS. He stated that these exhibits need to be regulated by state and federal agencies to protect the public health (yes, let's have even more bureaucracy—my taxes are too low!). I challenged him on this and asked him to cite specific cases in which anyone contracted RAS from a private exhibit. He cited a recent example from the National Zoo, in which 19 persons contracted RAS from contact with Komodo Dragons, during their Dragon Days celebration. I informed him that the National Zoo is not a private herp club, and asked for another example, which he was unable to provide. This exchange occurred in December at the Milwaukee Public Museum, which hosted a meeting of Partners in Amphibian and Reptile Conservation (PARC). PARC is a recently-formed national organization of professional herpetologists, various state and federal agencies, conservation organizations, and private individuals that are concerned with addressing the worldwide decline in herpetofauna. PARC attributes this decline to several main factors such as habitat fragmentation and land use polices that encourage sprawl, and unsustainable harvest, which includes collection for the pet trade. PARC does not seem to distinguish between actual herpetoculture

(captive propagation), and collection of wild herps. In fact, their stated position is that herpetoculture popularizes reptiles, which subsequently stimulates overharvesting from the wild to feed the pet trade. PARC has publicly taken the position that the expansion of herpetoculture will adversely affect the survival of herps in the wild, and that efforts must me taken to restrict the commercial sale of reptiles, whether or not they are captive-bred. PARC's mission is to encourage legislation that will restrict herp commerce and ownership, regardless of whether they are captive-produced or wild-caught. This organization has been influential and their activities can be monitored from their website: http://www.parcplace.org. This site can also be accessed from the Wisconsin Herpetology homepage at the Milwaukee Public Museum: http://www.mpm.edu/collect/vertzo/herp/atlas/welcome.html. It costs nothing to join PARC on-line and membership is open to all. I would encourage all herpetoculturists to join and remind them that we are not the enemy. Herpetoculture is definitely not inconsistent with the preservation of herps in the wild. Herps are exploited in the wild because there is no political will to prevent harvesting. You can learn more about this on the PARC site. Herpetoculturists need to make their voices heard on this site, which operates an E-mail listserve network. Job notices are also posted on this site.

Our hobby is under attack by many powerful forces. We cannot provide them with ammunition that can be used against us. I have included a separate page that describes steps I take to prevent RAS at my presentations, and I would encourage all reptile exhibitors to do this as well. **Ed Stone, DVM, P.O. Box 55191, Madison WI 53705-8991. E-mail: aor@itis.com**.

Have Fun and Be Safe at Sam & Ella's Reptile Shows!

After attending yet another successful ReptileFest and watching the public enjoy an experience in which they are permitted to have extensive contact with reptiles, I feel that some cautionary comments are in order. CHS members conducting public exhibits and presentations need to be aware that *Salmonella* and other potentially zoonotic organisms have been getting a lot of publicity lately and public health authorities are closely scrutinizing causes and prevention. As you know, Illinois legislators are looking at this as well! According to the Wisconsin State Department of Health, a five-year-old girl recently died here from Reptile-Associated Salmonellosis (RAS). I am not familiar with details of the case and only saw this mentioned on the web. The CDC website states that several persons die *every year* from RAS, usually infants and small children, and *thousands* more experience illness annually. Two years ago, I saw an article in the Neenah (WI) *Citizen* that reported that a child contracted RAS from petting a boa at the Green Bay, Wisconsin, Zoo. Here in Madison, Wisconsin, an Animal Planet zoologist toured some Madison schools with a variety of animals. During his programs, he allowed students to pet or handle several types of reptiles, including a small alligator. It was reported to me, by a librarian of the U.W. Veterinary and Ag Science Library, that his daughter contracted RAS from petting the alligator and that several other students may have been similarly affected. Such incidents are often publicized in the media and it always gives reptile owners and breeders a black eye and also often generates local ordinances or legislation that restrict reptile ownership. Recently Wisconsin Herpetological Society members reported they were informed by several schools that they were no longer welcome to provide free reptile programs for the school classes due to concerns of students' exposure to RAS. Teachers informed me that a national teachers' publication recently ran an article warning about the disease hazards of reptiles in classrooms. RAS is not the only disease that can be contracted from reptiles, but it is the most well-known.

This should be a wake-up call for all of us. All of us have experienced gratitude from appreciative audiences at the events and places where we have provided reptile shows and programs, so we know that the public wants these opportunities to experience and interact with herps. Everyone exhibiting herps has an obligation to the public to take measures to ensure that the public is not harmed. RAS is contracted from ingesting the bacteria. These bacteria can be on the skin of the animals, and if someone touches them, then puts their fingers in their mouth, or eats food without washing their hands first, they are at risk of contracting RAS. *Salmonella* is everywhere and 90% of human cases are contracted from improperly prepared meats, or contact with farm animals. Herps get it the same way we do—by eating uncooked prey animals that harbor it. Persons with normal immune systems are seldom affected. I have lived with hundreds of reptiles continuously for the last 40 years and have never been affected to my knowledge. I am sure I must eat at least 10 different strains of salmonella every day! I know hundreds of people who keep reptiles, and have asked many of them if they have ever been affected by RAS, and no one ever said yes. My impression is that RAS is hard for a healthy person to get. Persons with compromised immune systems can be seriously affected. According to the CDC, these include children, the elderly, pregnant women, and persons with any disease, or those on immunosuppressive drugs.

RAS is entirely preventable. *First*, the public must be warned of the hazards in order to make their own informed choices. I display signs and literature on RAS at all of my presentations, and ask the public to read and understand them before having contact with the reptiles. *Second*, we must make our animals safe to touch. We are fortunate to be working with a group of animals that have a wash-and-wear integument. This gives us a big advantage over those displaying birds or mammals—remember, *Salmonella* can be contracted by touching virtually any animal in an average petting zoo—birds, rabbits, goats, burros, etc. I disinfect all of my cages and cage props in a 20% bleach solution before each show. This is caustic and you must wear gloves. This will kill microorganisms. At the presentation, before I allow anyone to touch an animal, I completely immerse it up to its eyeballs in Nolvasan Solution®, by Fort Dodge (chlorhexidine). With a washcloth, I then literally scrub the animal down, including the top of the head. This burns the eyes and tastes awful, so you want to keep it out of your animals' eyes, nares, and mouth, but otherwise it is very easy on skin and other tissues, and the animals tolerate it well. The public always ask what the blue liquid is that I bathe the animals in. I use this as an opportunity to explain

that all animals (not just reptiles) carry potentially zoonotic bacteria on their skin that can cause problems for persons with immune function impairment, and for the safety of the public, I disinfect all animals before allowing anyone to touch them to ensure an enjoyable experience. Nolvasan is a clinical disinfectant that kills bacteria and viruses if used as directed. This involves a 15-minute contact/drying time. Twenty ounces diluted in several gallons of water is several times the manufacturers recommended minimum concentration for efficacy, so this should kill anything on your animals. I literally "hang the animals up to dry" after bathing on branches that I set up. This is really an excellent way to display reptiles outside of their cages and the public enjoys watching them climb. Because *Salmonella* is passed in the feces, I do not feed snakes for at least a week before an event, and withhold food from lizards and chelonians for at least several days as well, to minimize the probability of defecation during a display. We are fortunate to be working with a group of animals whose feeding regimen can be so easily manipulated to maintain a sanitary display environment, and whose integument lends itself to this disinfection process. This cannot be done with amphibians, birds, or mammals. Gallon bottles of Nolvasan can be purchased at most medical, veterinary, and farm supply (e.g., Farm & Fleet) stores, for ~$35. Not only is this a bargain for the protection it affords, but the public will only be further impressed by our professionalism and concern for their safety. **Ed Stone, DVM, P.O. Box 55191, Madison WI 53705-8991. E-mail: aor@itis.com**.

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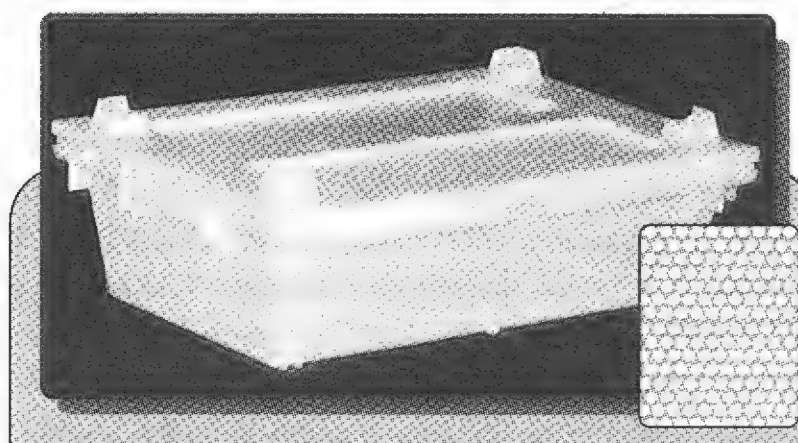

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Bull. Chicago Herp. Soc. 35(7):171-174, 2000

Herpetology 2000

In this column the editorial staff presents short abstracts of herpetological articles we have found of interest. This is not an attempt to summarize all of the research papers being published; it is an attempt to increase the reader's awareness of what herpetologists have been doing and publishing. The editor assumes full responsibility for any errors or misleading statements.

UNUSUAL SNAKE BEHAVIOR

H. H. Welsh, Jr., and A. J. Lind [2000, J. Herpetology 34(1): 67-74] describe and quantify the components of an unusual snake behavior used to attract fish prey: lingual-luring. The authors' earlier research on the foraging behavior of the Pacific Coast aquatic garter snake (*Thamnophis atratus*) indicated that adults are active foragers, feeding primarily on aquatic Pacific giant salamanders (*Dicamptodon tenebrosus*) in streambed substrates. Juvenile snakes, however, use primarily ambush tactics to capture larval anurans and juvenile salmonids along stream margins, employing behaviors that include the lingual-luring described here. Lingual-luring differs from typical chemosensory tongue-flicking by the position of the snake, contact of the tongue with the water surface, and the length of time the tongue is extended. Luring snakes are in ambush position and extend and hold their tongues out rigid, with the tongue-tips quivering on the water surface, apparently mimicking insects in order to draw young fish within striking range. This behavior is a novel adaptation of the tongue-vomeronasal system by a visually-oriented predator.

ABNORMAL GATORS IN A CONTAMINATED LAKE

D. B. Pickford et al. [2000, J. Herpetology 34(2):233-239] note that evidence increasingly suggests that some pollutants can permanently affect development of the endocrine system in wildlife. Embryonic and neonatal exposure to these "endocrine-disrupting contaminants" can cause structural and functional abnormalities of the reproductive system. It has recently been hypothesized that demasculinization of a population of male juvenile American alligators (*Alligator mississippiensis*) from Lake Apopka, Florida, could result from exposure to anti-androgenic contaminants. The persistent pesticide contaminant *p,p'*-DDE interacts with the mammalian androgen receptor and antagonizes androgen action in vivo. Lake Apopka wildlife, contaminated through agriculture and an industrial accident, exhibits elevated levels of *p,p'*-DDE. This study provides further evidence of reproductive dysfunction in Lake Apopka juvenile alligators by comparison with a "reference" population from a relatively uncontaminated lake nearby, Lake Woodruff National Wildlife Refuge. Phallus size correlated strongly with plasma dihydrotestosterone (DHT) concentrations or body size in juvenile males from Lake Woodruff. In contrast, males from Lake Apopka had significantly smaller phalli (adjusted for body size) than those from Lake Woodruff and correlations with body size or plasma DHT concentrations were weak or absent. Plasma DHT concentrations did not differ significantly between juvenile males from the two lakes. In contrast, plasma DHT concentrations were significantly higher in females from Lake Apopka compared to those from Lake Woodruff. This is the first report of masculinized female juvenile alligators from Lake Apopka and suggests that juveniles of both sexes exhibit altered endocrine and reproductive parameters.

FEEDING ECOLOGY OF ERYCINE BOAS

J. A. Rodrí guez-Robles et al. [1999, J. Zool., London 248: 49-58] note that the Macrostomata accounts for more than 85% of extant snakes and is characterized by increased mobility of the jaws and increased gape size. Stomach contents of museum specimens and specific literature records were used to describe the food habits of a basal clade of macrostomatan snakes—the erycine boas (Erycinae)—with an emphasis on the North American *Charina bottae*. Mammals, lizards, birds and squamate eggs composed 66%, 17%, 7% and 5%, respectively, of the prey of *C. bottae*. Smaller *C. bottae* fed on squamate eggs and lizards, whereas larger snakes added mammals and birds to their diet, and ceased to take squamate eggs. Ten of 12 snakes with multiple prey had eaten nestling birds or mammals, and snakes that ate multiple prey were not significantly larger than those that had single prey. *Charina trivirgata* and *C. reinhardtii* also prey on mammals, whereas species of *Eryx* feed mainly on mammalian prey, but also eat lizards and occasionally birds. Evolutionarily more basal groups of snakes primarily feed on elongate prey, which suggests that innovations of the feeding apparatus of macrostomatans allowed these snakes to eat heavier and bulkier prey, particularly mammals. Erycines appeared and diversified at approximately the same geological time as rodents, suggesting that rodents perhaps constituted an abundant prey resource that favored the diversification of early macrostomatans.

GRAY TREEFROGS AND BULLFROG CALLS

J. J. Schwartz et al. [2000, Herpetologica 56(1):27-37] note that the bullfrog, *Rana catesbeiana*, is a predator of the gray treefrog, *Hyla versicolor*. Recent research with a variety of taxa has demonstrated that females may be sensitive to changes in their risk of predation and may respond behaviorally during mate choice in ways that reduce this risk. In a three-speaker female choice experiment, the authors tested whether gravid female treefrogs would avoid approaching a source of conspecific advertisement calls when it was adjacent to a speaker broadcasting bullfrog calls. They also assessed the hearing sensitivity of female gray treefrogs to bullfrog calls with neurophysiology and tested whether calling male bullfrogs would attack a simulated treefrog. A final playback experiment tested whether males would reduce their calling in response to bullfrog calls. Because calling male bullfrogs often attacked our model frog, the calls of this ranid might be a useful indicator of predation risk to *H. versicolor*. Nevertheless, the authors found that neither female phonotaxis nor male calling was influenced by broadcasts of bullfrog vocalizations. While auditory thresholds of *H. versicolor* were about 17 dB SPL higher to the heterospecific than to the conspecific call, thresholds to the bullfrog call were well below sound pressure levels used in the tests of phonotaxis. Possible explanations for these behavioral findings are discussed.

MORTALITY OF LARGE ELAPID SNAKES

P. B. Whitaker and R. Shine [2000, J. Herpetology 34(1): 121-128] note that intuition suggests that large, dangerously venomous snakes should be relatively invulnerable to predators, but actual data on this topic are very scarce. The authors examined sources of mortality in two species of large elapid snakes (eastern brownsnakes, *Pseudonaja textilis*, and common blacksnakes, *Pseudechis porphyriacus*) in the Murrumbidgee Irrigation Area in southeastern Australia. Most attacks on snakes were by people and feral cats. Over a three-year period, at least 19% of radio-tagged brownsnakes were attacked, and eight snakes (14% of this population) were killed. The authors also examined road-killed snakes in the general area, and surveyed the public about where and when they encountered snakes, and how both they and the snakes responded to those situations. The questionnaire results suggest that about half of the snakes seen by people (whether in towns or on farms) were approached and about one-third were killed. Most of the mortality involved adult male snakes during the breeding season (spring). Snakes encountered by women were more likely to be killed than were those found by men. The response of snakes to encounters with people was quantified (by means of > 500 encounters on regularly-walked transects) to compare with people's reports of snake responses. This comparison revealed that people are at least 20 times more likely to advance toward a snake, and 100 times more likely to attack, than is a snake to advance on, or attack, a person. People grossly over-rate the degree of aggression shown by these animals, and frequently misinterpret defensive displays as attacks. Furthermore, people are unaware of most of the snakes they encounter (especially those which use crypsis to avoid detection), and this biases the results towards over-estimation of aggressive responses. The authors conclude that attacks by humans on snakes are largely unjustified, and that public education is needed to reduce both personal risk and the slaughter of wildlife.

DIAMONDBACK TERRAPIN MOVEMENTS

W. M. Roosenburg et al. [1999, Chelonian Conservation and Biology 3(3):425-429] studied habitat selection and movements of diamondback terrapins, *Malaclemys terrapin*, in a brackish water estuary of the Chesapeake Bay in Maryland. Adult male, adult female, juvenile male, and juvenile female turtles were tagged using a fishing bobber and followed by boat for 3-hr periods. Location was determined using GPS at 15-min intervals. Water temperature, depth, and distance from shore were measured and compared among the groups. Adult females moved more often and were farther from shore than adult males, juvenile males, and juvenile females. Adult females were observed more frequently in deeper water than juvenile males and females. Water temperature did not differ between the groups. Findings suggest that larger adult female terrapins move further and spend more time in deeper water while smaller males and all juveniles remain nearer shore in shallower water. Movement differences are probably the consequences of differences in foraging behavior. Differences in habitat use can affect terrapin management and conservation strategies both locally and throughout the species' range.

COMPARATIVE ECOLOGY OF TWO BRAZILIAN GECKOS

L. J. Vitt et al. [2000, Copeia (1):83-95] studied two sphaerodactyline geckos, *Gonatodes hasemani* and *G. humeralis*, in eastern Rondô nia, Brazil, to determine ecological factors allowing coexistence. *Gonatodes hasemani* lives primarily on fallen logs in undisturbed forest, whereas *G. humeralis* lives primarily on tree trunks. Although both species occur in most forest patches, *G. hasemani* is more common within terra firme (never flooded) forest, and *G. humeralis* is more common in forest adjacent to rivers. *Gonatodes hasemani* is slightly larger in body size and is more robust than the more arboreal *G. humeralis*. Both species are active at the same time during the day, maintain the same body temperatures, and are most frequently found in shade. Dietary overlaps based on numbers (0.831) and volumes (0.877) of prey types were high indicating relatively similar diets. Differences in prey types appear to reflect differences in microhabitat use, and both species eat prey of the same size. Reproductive characteristics are similar but the larger bodied *G. hasemani* produces slightly larger eggs. The niche axis on which these two lizards most clearly separate is microhabitat: *G. hasemani* uses lower perches with larger diameters in the forest primarily because individuals typically are found on fallen logs, whereas *G. humeralis* uses higher and thinner perches because individuals are typically found on tree trunks and vines. Limited data on snakes that prey on small lizards in Amazon forest suggest the possibility that niche differences between these *Gonatodes* species may be mediated by predators.

NESTING ECOLOGY OF *PODOCNEMIS SEXTUBERCULATA*

J. C. B. Pezzuti and R. C. Vogt [1999, Chelonian Conservation and Biology 3(3):419-424] studied turtle nesting behavior on Pirapucu beach on the Japurá River inside the focal area of the Reserva de Desenvolvimento Sustentado Mamirauá, State of Amazonas, Brazil, between September and November 1996. They investigated the spatial distribution and density of *Podocnemis sextuberculata* nests, nest survivorship, incubation duration, and the causes of mortality of embryos, including egg harvesting by local people. An area of nearly 0.6 km^2 of Pirapucu beach was protected against harvest of eggs by local inhabitants. Each nest was mapped the morning after laying. Nests that produced hatchlings and those destroyed by rising water levels of the river were discriminated through a logistic regression analysis. The authors located 193 nests (3.47 nests/ha). Females nested in areas that were central, higher, and more distant from the water. In the unprotected area, nearly 100% of eggs were harvested, and only one nest was found intact. In the protected area, rising water levels destroyed 111 nests (56% of total). Day of oviposition and location on the beach differentiated successful and drowned nests ($p = 0.00059$ and $p = 0.00011$, respectively). Hatchlings from 4 nests were depredated by sarcophagid fly larvae. Evaluation of the mortality caused by rising water levels and monitoring of nest temperatures and hatchling sex ratios in other years will be necessary to understand these phenomena and their annual variations.

ADHESIVE FORCE OF A SINGLE GECKO FOOT-HAIR

K. Autumn et al. [2000, Nature 405:681-685] note that geckos are exceptional in their ability to climb rapidly up smooth vertical surfaces. Microscopy has shown that a gecko's foot has nearly five hundred thousand keratinous hairs or setae. Each 30–130 μm long seta is only one-tenth the diameter of a human hair and contains hundreds of projections terminating in 0.2–0.5 μm spatula-shaped structures. The authors report the first direct measurements of the adhesive force of a single seta of a tokay gecko (*Gekko gecko*). The measurements were made using a two-dimensional micro-electro-mechanical systems force sensor and a wire as a force gauge. Measurements revealed that a seta is ten times more effective at adhesion than predicted from maximal estimates on whole animals. Adhesive force values support the hypothesis that individual setae operate by van der Waals forces (i.e., intermolecular binding forces). The gecko's peculiar behavior of toe uncurling and peeling led to the discovery of two aspects of setal function which increase their effectiveness. A unique macroscopic orientation and preloading of the seta increased attachment force 600-fold above that of frictional measurements of the material. And suitably orientated setae reduced the forces necessary to peel the toe by simply detaching above a critical angle with the substratum.

BULGARIAN TORTOISE SPECIES

N. G. Amiranashvili [2000, Amphibia–Reptilia 21(1):67-81] studied the two tortoises that inhabit Bulgaria: *Testudo graeca ibera* Pallas, 1814 and *Testudo hermanni boettgeri* (Mojsisovics, 1889). Certain features normally used for their identification, such as division of the supracaudal scute (divided in *T. h. boettgeri*; undivided in *T. g. ibera*), are not absolute. Seven whole shells of *T. g. ibera* and 11 of *T. h. boettgeri* were studied, and also a large series of shell fragments of both species. Based on analysis of 44 shell characters, *T. h. boettgeri* was distinguished by the following: maximal width of vertebral scute V clearly greater than maximal widths of other vertebral scutes; width of vertebral scutes II, III and IV smaller than width of pleural scutes I, II and III; medial length of pectoral scute equal or slightly greater than half the medial length of the hypoplastron; hypo-xiphiplastral suture distant from the corner of the inguinal notch; medial length of xiphiplastron less than maximal width (in females), or nearly half the maximal width (in males).

NEW COBRA FROM MYANMAR

J. B. Slowinski and W. Wüster [2000, Herpetologica 56(2): 257-270] describe *Naja mandalayensis*, a new species of spitting cobra from central Myanmar (formerly Burma). Multivariate analyses of morphological characters and analyses of mtDNA sequences confirm the distinctiveness of the new species. Phylogenetic analysis of the mtDNA data indicate that, among the cobra species of the southeast Asian mainland, the new species (the authors use the common name "Burmese spitting cobra") is most closely related to the Thai spitting cobra, *Naja siamensis*. The new species is apparently endemic to an arid region in central Myanmar.

PREDATION ON CORN SNAKE EGGS

T. P. Wilson [2000, J. Herpetological Medicine and Surgery 10(1):4-6] notes that in the wild, reptile nests are often predated, parasitized or scavenged. However, such events under controlled, artificial conditions are rare. In 1996, three clutches of corn snake, *Elaphe guttata*, (43 eggs) were infested by dipteran larvae of the family Phoridae. Of these, 42 eggs were predated and the 43rd egg produced a single fully developed, stillborn embryo. This is the first reported case of snake egg predation by fly larvae. Invertebrates may infest reptile clutches for several reasons. These may include the nutritional value of eggs for developing larvae environmental condition for oviposition (i.e., a warm, moist microclimate). Three techniques are suggested for preventing invertebrate infestations from incubation materials. In addition, recommendations on sanitation are provided to reduce its occurrence in captivity. Veterinarians and herpetoculturists should be aware of the negative effects of such infestations and be knowledgeable on how to minimize or prevent their occurrence.

PACIFIC LEATHERBACKS FACE EXTINCTION

J. R. Spotila et al. [2000, Nature 405:529-530] report that the dwindling numbers of leatherback turtles (*Dermochelys coriacea*) are signaling a threat to biodiversity in the oceans. Eleven years of data on nesting leatherbacks at Playa Grande, Costa Rica, reveal that the number of nesting females dropped from 1,367 in 1988 to just 117 in 1998. Using a mathematical model, the authors predict that fewer than 50 females will remain in this population by 2004. The situation at Playa Grande is reflected at many other Pacific nesting beaches. For example, the large Mexican nesting colony declined exponentially from 70,000 in 1982 to under 1,000 by 1994 and to fewer than 250 in 1998–99. Mortality, apparently due to human fishing activity, seems to be the best explanation for the population decline. The authors conclude that if these turtles are to be saved, immediate action is needed to minimize mortality through fishing and to maximize hatchling production.

HATCHLING RACER FOOD PREFERENCES

W. E. Cooper, Jr., et al. [2000, Amphibia–Reptilia 21(1): 103-115] experimented to find responses to chemical food stimuli by previously unfed hatchlings from widely separated populations of the colubrid snake *Coluber constrictor* in the U.S.; strong responses were elicited by items important in the local diet. These differed between populations, suggesting that response has been adjusted to local diet by natural selection. *Coluber constrictor priapus* from South Carolina tongue-flicked at elevated rates to cues from lizards, snakes, and frogs, and bit only in response to a preferred lizard prey. They responded more strongly to the sympatric lizard *Anolis carolinensis* than to *A. s. sagrei*, an allopatric congener. Strong response to cues from the ophidiophagous snake *Lampropeltis triangulum* might reflect motivation for predator avoidance or for feeding, depending on relative snake sizes. *Coluber constrictor mormon*, for which insects and mammals are the most important foods, responded most strongly to stimuli from sympatric insects, mammals, and a lizard, as well as a bird.

RED-BACKED SALAMANDER SOCIOECOLOGY

S. J. Toll et al. [2000, Copeia (1):276-281] note that male and female red-backed salamanders (*Plethodon cinereus*) establish territories under cover objects (rocks, logs) on forest floors of northeastern North America. Because females should be food limited and males mate limited in terms of fitness, the authors tested the hypothesis that territorial residents and invaders should differ intersexually in certain morphological or behavioral traits. They displaced males and females from cover objects on the forest floor at Mountain Lake Biological Station, Virginia, and monitored homing by displaced individuals and invasion of vacated cover objects by novel individuals. Neither residents nor invaders differed significantly intersexually in snout–vent lengths, total lengths, or sizes of cover objects inhabited. Also, the number of male versus female residents that successfully returned to their cover objects did not differ significantly. However, significantly more females than males invaded vacated cover objects, and they did so significantly faster. These data suggest that males and females play different strategies related to territorial acquisitions, which may reflect their different requirements for maximizing individual fitness.

ULTRASOUND SCANS OF PLOUGHSHARE TORTOISES

G. Kuchling and C. Razandrimamilafiniarivo [1999, Dodo 35: 109-115] used ultrasound scanning to examine the reproductive organs of seven female ploughshare tortoises, *Geochelone yniphora*, at the Durrell Wildlife Conservation Trust's tortoise breeding center at Ampijoroa, Madagascar. Structures identified included vitellogenic ovarian follicles of various sizes (September and March/April), preovulatory follicles (March/April), atretic follicles (September and March/April), oviducal eggs (March/April) and in one case previtellogenic follicles in juvenile ovaries. Vitellogenesis was well under way during September, more than two months before the start of the mating season. Mating and nesting data of the last eight breeding seasons suggest that ovulation and egg production only occurred when copulations took place during the mating season and that the vitellogenic follicles of unmated females became atretic and were reabsorbed.

A NEW SPECIES OF TREEFROG FROM OAXACA

P. C. Ustach et al. [2000, Herpetologica 56(2):239-250] describe *Hyla calthula* from the Sierra Mixes, Oaxaca, Mexico. With its large size and distinctive, bold color pattern it cannot be confused with any other known species of *Hyla* in Mexico, with the exception of the superficially similar *H. pentheter* and *H. bistincta*. The new species differs from the similar-looking *H. pentheter* by reaching a larger size, having a smaller tympanum, more webbing on the feet, more extensive nuptial excrescences, and a different color pattern on the flanks. The authors tentatively place this new species in the phenetic assemblage commonly referred to as the *H. bistincta* group. They describe and illustrate the tadpole and discuss ontogenetic variation among tadpoles, with reference to existing information on tadpoles of other species from the *H. bistincta* group.

RECOGNITION OF GROUP MEMBERS IN A GREGARIOUS LIZARD SPECIES

C. M. Bull et al. [2000, J. Herpetology 34(1):92-99] report that the Australian gidgee skink, *Egernia stokesii*, is gregarious and lives in stable social aggregations. This study investigated whether individuals can recognize group members and distinguish them from non-group members, and whether recognition is based on relatedness. In one experiment, ten groups of three or four unrelated subadult lizards had been maintained for two years. Lizards from these groups were each presented with stimuli from themselves, from a member of their own group, and from a conspecific member of another group. Two types of stimuli were used; a paper substrate which had absorbed lizard body secretions, and lizard scats. For each type of stimulus, lizards showed a significantly stronger response, as measured by number of tongue flicks and by time in contact, to the stimulus from the non-group member, than to the stimuli from themselves or from a group member. In a second experiment, there were eight "related" groups each of three sibling lizards, and seven "unrelated" groups each of three individual lizards from different litters. Again lizards responded more strongly to stimuli from non-group members than to stimuli from group members. In a third experiment, juvenile lizards responded as strongly to stimuli from non-group members if they were related or unrelated. Together, these results imply that individuals in this lizard species can discriminate between two other lizards depending on whether they do or do not belong to the same social group. This suggests that individual lizards have unique chemical signals, and that an important component of social cohesion, the ability to recognize group members, is present in this gregarious lizard species. The results also suggest that familiarity, rather than relatedness, explains recognition of group members.

Answers to Herp-Acrostic #17

The quotation was taken from page 13 of *Florida Water Snakes* by [Ross] Allen:
"All snakes have a kind of a musk which gives off disagreeable odors, and it is not difficult to recognize the type of snake by its particular odor. . . . Water snake musk is seldom noticeable after they have been captured and quieted down in captivity."

A. Aeschylus
B. LeConte
C. Lotic
D. Edward D. Cope
E. Netlike
F. FitzSimons
G. Lydekker
H. Oophagous
I. Ridley
J. Institute
K. Devonian
L. Auffenberg
M. Whitesnake
N. Advanced Vivarium
O. The Frog Hospital
P. Effete
Q. Ribbon
R. Spanish Cobras
S. Nodded
T. Artifact
U. Kittiwake
V. Eyas
W. Squamata

Unofficial Minutes of the CHS Board Meeting, June 16, 2000

The meeting was called to order at 7:42 P.M. Board members Greg Brim, Marcia Rybak, Steve Spitzer and Jenny Vollman were absent.

Officers' Reports

The minutes of the May Board of Directors meeting were read and accepted (the unofficial minutes were accepted by the Board as the official minutes).

The Treasurer's report was read and accepted. Treasurer Gary Fogel noted that "Amazon.Com–Quarterly" has been added as a category in the Treasury Report. Jack Schoenfelder reported that copies of the CHS tax forms are available for viewing through Jack or Gary. The forms are too complex to post over the CHS web site. Jack also noted that income has gone down along with declining membership.

Membership Secretary Mike Dloogatch reported that membership continues to drop. As of the June mailing, membership was 833. In order to curb membership decline, Linda Malawy stated that the CHS needs to find out what people want to get out of the organization. Lori King felt that the CHS is unknown to many in Chicago and needs to make itself known. Rich Crowley volunteered to bring feeder rodents to the general meetings and Jack felt that the CHS should offer more at these meetings in the way of selling books and dry goods. Any decisions regarding any sales at the general meetings will be advertised in the *Bulletin*. Jack also suggested holding a "Mission/Vision/Value" meeting for purposes of brainstorming new ideas and redefining CHS goals.

Vice-President Lori King reported no changes in scheduled speakers since last month. The idea of holding a "workshops" meeting was discussed.

Publications: Marcia Rybak has reported that the CHS web site has been receiving about 1200 hits per month despite continuing problems. The page still needs to be updated more frequently and the June Show & Tell general meeting will be included in an update. Using the direct IP address was suggested when having difficulty getting the website up. This is http://207.105.50.158.

Standing Committees

Shows: Jack stated that he regularly receives many calls from schools requesting shows. The CHS will have a presence at the breeders' show in Gurnee during July. Dawn Miller of the Chicago Academy of Sciences called Lori concerning their Corporate Family Day on July 8. The CHS is requested to participate by bringing herps to display and Joan Moore will be in charge of this event. Lori would like to utilize a space to educate the public of the plight of the Utila iguana at this affair.

Library: Jack hopes that Jeff Janovetz, who has volunteered to serve as CHS librarian, will attend a board meeting to discuss plans for the library.

Adoptions: Rich Crowley reported that the Animal Welfare League confiscated a number of animals in Milwaukee, including three Australian water pythons, one blue-tail monitor and three D'Albert's pythons. Some will be available for adoption. Rich also reported that Jeff McDaniel and Steve Quint may be able to help out with the adoptions program in Kankakee.

ReptileFest: The exit meeting for ReptileFest took place June 10. A new chairperson will be needed to direct ReptileFest 2001 and an announcement will be made at the general meeting. A new location is being sought.

Ad Hoc Committees

Nominating: The 2000 nominating committee consists of Ron Humbert (co-chair), Joan Moore (co-chair), Rich Crowley, Linda Malawy and Jenny Vollman.

Symposium 2001: Char Haguewood reported that there was a meeting June 10 and Ron Humbert, Lori King and Mike Dloogatch comprise the speaker sub-committee. Possible speakers are being discussed.

Picnic: The combined CHS/Turtle Club Picnic will be held at the Camp Ground Road Grove in Des Plaines on August 13.

Old Business

The renewed liability insurance policy for the CHS will run through May 4, 2001.

New Business

Char Haguewood and Lori King will put a packet together in an attempt to obtain sponsorships for the Symposium and will promote the CHS as a conservation/education organization.

Round Table

Jack thanked everyone for the cards, flowers and condolences which he received after the loss of his mother. He also apologized for not holding up his end earlier in the year (although no apology was necessary under the circumstances).

The meeting adjourned at 9:43 P.M.

Respectfully submitted by Recording Secretary Karen Bielski.

Advertisements

For sale: Frozen rodents now available at the General Meeting starting July 26! Just another good reason to come to the meetings at the Chicago Academy of Sciences Patty Notebaert Nature Museum. Assorted sizes of rats and mice. Call Rich Crowley at (708) 485-5705 for details and pricing.

For sale: rats and mice—pinkies, fuzzies and adults. Quantity discounts. Please send a SASE for pricelist or call Bill Brant, *THE GOURMET RODENT*, 6115 SW 137th Avenue, Archer FL 32618, (352) 495-9024, E-mail: GrmtRodent@aol.com.

For sale: murine-pathogen-free rats and mice available in all sizes, live or frozen: pinkies, fuzzies, crawlers, small, medium and large. Frozen crawler mice in lots of 2000, $.17 each. Also available, full grown hairless mice. FOB shipping point. Master Card accepted. Call (518) 537-2000 between 8:00 A.M. and 5:00 P.M. or write SAS Corporation, 273 Hover Avenue, Germantown NY 12526 for prices and additional information.

For sale: from **The Mouse Factory**, producing superior quality, frozen feeder mice and rats. We feed our colony a nutrtionally balanced diet of rodent chow, formulated especially for us, and four types of natural whole grains and seeds. Mice starting from: pinks, $.17 each; fuzzies, $.24 each; hoppers, $.30 each; weanling, $.42; adult, $.48. Rats: starting with pinks at $.45 each, to XL at $1.80 each. Discount prices available. We accept Visa, MC, Discover or money orders. P.O. Box 85, Alpine TX 79831. Call us **toll-free** at (800) 720-0076 or visit our website: http://www.themousefactory.com.

For sale: from Bayou Rodents, excellent quality feeder mice and rats. Every size available. Pinks starting at $20/100. Orders are shipped by overnight service Monday thru Thursday. We accept Visa, MasterCard and Discover. For more info, contact Rhonda or Peggy, (800) 722-6102.

For sale: **high quality frozen feeders**. Over a decade of production and supply. Seven sizes of mice availabe: small newborn pinks up to jumbo adults. Prices start at $25 per 100. Feeders are separate in the resealable bag, not frozen together. Low shipping rates. Free price list. Kelly Haller, 4236 SE 25th Street, Topeka KS 66605, (913) 234-3358 evenings and weekends.

For sale: Out-of-print books: *The Reptiles of China* by Clifford Pope, 1935, excellent condition, $650; *FitzSimons' Snakes of Southern Africa* by Donald Broadley, 1983 revision, mint condition with mint dust jacket, $125; International Herpetological Symposium proceedings (all excellent condition): No. 4, $55, No. 7, $45, No. 8, $45, No. 9, $65, No. 10/11 (combined volume), $75, No. 12, $65, No. 13, $60, No. 15, $45; International Zoo Yearbooks (all are hardcover with dust jacket unless otherwise noted, near excellent–excellent condition): Volume 8, $40, Vol. 9 (herp theme), $45, Vol. 14, $45, Vol. 18, $50, Vol. 20, $55, Vol. 21 (softcover), $40, Vol. 22 (softcover), $40, Vol. 23 (softcover), $50, Vol. 30, $85. Shipping charges are $2.50 for the first book, and $1.00 for each additional book. Please contact me for further details. Dave Fogel, The Herp House, 1750 Haines Road, Orwell, OH 44076, USA, phone: (440) 685-4615, fax: (440) 685-4572, E-mail: herphouse1@aol.com.

For sale: large reptile cage, 5'L × 2½'W × 4'H, sliding glass door, all fixtures, bulbs, timers and a Helix thermostat included. Value $1000; asking $700 o.b.o. Mary, (312) 588-0457.

For sale: red-footed tortoises, 1999 & 2000 hatchlings, $100 each—5 or more, $95 each—10 or more, $85 each; Hermann's tortoises, 2000 hatchlings, $125 each; elongated tortoises, 2000 hatchlings, $100 each; 2½-year-old leopard tortoises, $125 each; 3½-year-old leopard tortoises, $185 each. Also, 2000 hatchlings: Okeetee corn snakes, $20 each; leopard geckos, $25 each. Linda, (918) 342-2159, call before 10 P.M. CDT. [OK]

For sale: one male Dumeril's boa, 3 years old, feeding on rats, nice colors, $150, will throw in a 55-gal. aquarium to close the sale. Also one male and one female Blair's color phase gray-banded kingsnakes, 3 years old, $150. Mike, (708) 484-5238

For sale: Why buy wild-caught royal pythons (*Python regius*) when you can buy healthy captive bred? I have babies available for $40 each, complete with history (hatch date, feeding dates, etc). Also, aberrant California kingsnakes for $25 each. All babies guaranteed feeding and sexed. Call Rich Crowley, (708) 485-5705 for details.

For sale: womas—c.b. babies, "starburst" phase, high-contrast strawberry banding, orange bellies, bright orange heads with supraocular black spots, feeding great on thawed fuzzies, unrelated available, $3,000/pair, lone males, $1250. Also, adult Mexican rosy boas, proven breeders, $100 female, $75 male, or $150/pair; Macklot's pythons yearlings, $75 each; yellow anacondas, c.b. babies, $75 each, $50 each in lots of 10; screaming baby Brazilian rainbows, $100 each. Mark Petros, (847) 854-3259, E-mail: turbovixens1@prodigy.net.

For sale: Send SASE to CRC, P.O. Box 0731, Las Vegas NV 89125-0731 for brochures and list of species available. Limited bookings available for guided tours of herpetological collection sites in Nevada. Call/fax (702) 450-0065. URL http://www.herp.com/crc/ E-mail: crcsafetie@aol.com.

Tours: Adventure tours to Madagascar! Join **Bill Love** seeing and photographing fauna and flora, heavily herp-biased, across the world's least known mini-continent. Maximum fun & photo ops assured on every trip. Contact him at: BLUE CHAMELEON VENTURES, P.O. Box 643, Alva FL 33920. TEL: (941) 728-2390, FAX: (941) 728-3276, E-mail: blove@cyberstreet.com.

Tours: **Road-riding in Costa Rica!** Treat yourself to the trip of a lifetime! Learn about tropical herps, find them, photograph them, see where they live. **Greentracks, Inc.**, offers the best herpetological tours led by internationally acclaimed herpetologists and herpetoculturists. See the Amazon, visit cloud forests, experience the world's greatest rainforest, super sunsets and good company. Call (800) 9-MONKEY.

Wanted: big-headed turtles; mata mata turtles; Mexican giant mud turtles (*Staurotypus triporcatus*); exceptionally large common snappers (45 lbs. & up); large alligator snappers (over 90 lbs.); spectacled caiman from Trinidad, Tobago and Surinam; dwarf caiman; smooth-fronted caiman; albino turtles (except red-eared sliders). Walt Loose, (610) 926-6028, 9:00 A.M. – 1:00 P.M. or after 11:30 P.M. Eastern Time.

Line ads in this publication are run free for CHS members—$2 per line for nonmembers. Any ad may be refused at the discretion of the Editor. Submit ads to: Michael Dloogatch, 6048 N. Lawndale Avenue, Chicago IL 60659, (773) 588-0728 evening telephone, (312) 782-2868 fax, E-mail: <MADadder0@aol.com>.

NEW MEETING SITE

The regular monthly meetings of the Chicago Herpetological Society now take place at Chicago's newest museum—the **Peggy Notebaert Nature Museum**. This beautiful new building is at Fullerton Parkway and Cannon Drive, directly across Fullerton from the Lincoln Park Zoo. Meeting dates will continue to be the last Wednesday of each month. Meetings start at 7:00 P.M. and last until 9:30 P.M. Parking is free on Cannon Drive. During the summer months the Lincoln Park Zoo lots across Fullerton charge $7. A plethora of CTA buses stop within easy walking distance.

UPCOMING MEETINGS

The next meeting of the Chicago Herpetological Society will be held at 7:00 P.M., Wednesday, July 26, at the Peggy Notebaert Nature Museum, Cannon Drive and Fullerton Parkway, in Chicago. **Bill McMahon**, Curator of Ectotherms at the Louisville Zoo, will be the featured speaker. Bill's topic will be conservation projects for the Cuban crocodile (*Crocodylus rhombifer*).

The speaker at the August 30 meeting will be **Jake Socha**, a fifth-year graduate student in biomechanics at the University of Chicago. Jake will speak on "Flying Snake Biomechanics — Fun with Fearless Flyers."

The Chicago Turtle Club

The next meeting of the Chicago Turtle Club will be on Sunday, July 30, 1:00 – 4:00 P.M., at the North Park Village Nature Center, 5801 N. Pulaski, in Chicago. Ms. Tess Cook will speak on "Age Determination in Box Turtles and Other Interesting Turtle Facts." Meetings are informal; questions, children and animals are welcome. Parking is free. For more info call Lisa Koester, (773) 508-0034, or visit the CTC website: http://www.geocities.com/~chicagoturtle.

AUGUST 13 PICNIC

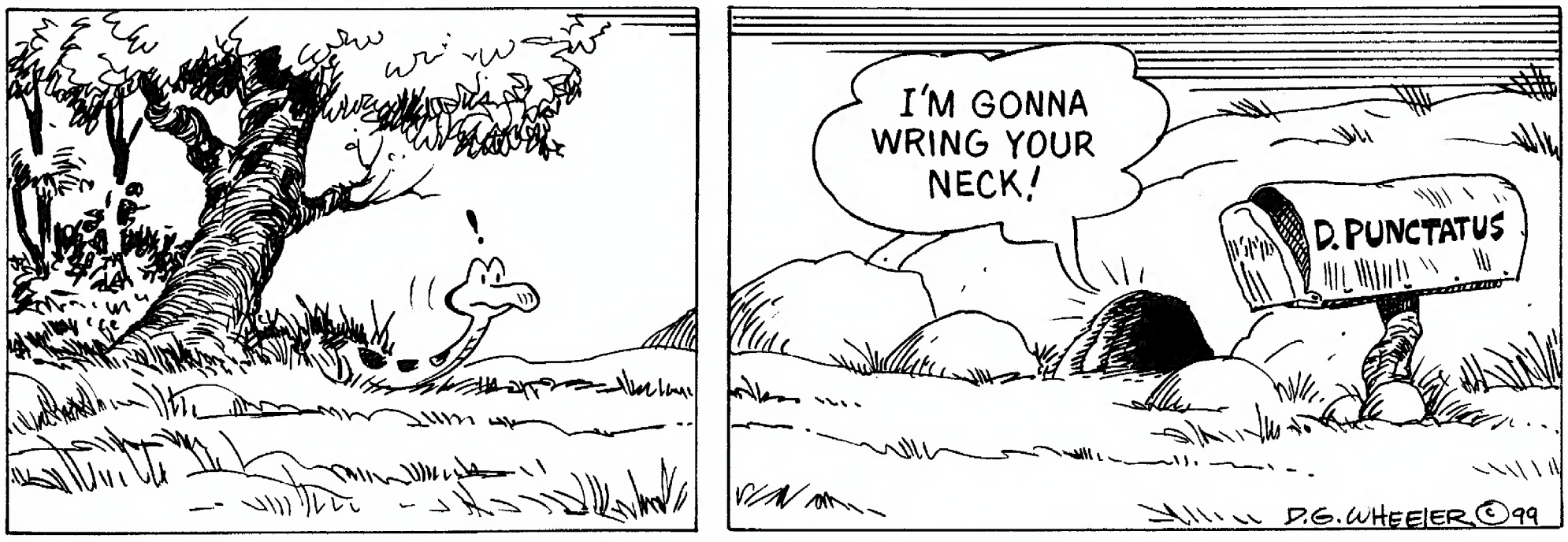
On August 13 the Chicago Herpetological Society and the Chicago Turtle Club will jointly hold a picnic at the Campground Woods Forest Preserve in Des Plaines, just east of River Road on the south side of Algonquin Road. The entrance to the picnic grove is on the south side of Algonquin across the street from the Methodist camp. The closest highway is I-294. Southbound 294 exits at westbound Golf Road. Turn south at River Road, south of Dempster Street is Algonquin; turn left (eastbound) go a few blocks and turn south at Campground Woods. Northbound 294 exits at westbound Touhy; turn immediately into River Road northbound. Go past Oakton to Algonquin, turn right and go to Campground Woods. Look for a CHS sign on a car near the grove. Bring munchies, potluck, whatever you wish to share with your fellow herpers. The CHS will provide grills, charcoal, and soft drinks. There will be a piñata for the children. There is traditionally a box turtle race, although last year a couple of Russian tortoises snuck in.

DONATIONS TO THE MAY 31 RAFFLE

The following is a listing of those businesses and individuals who generously donated items for our monthly raffle at the May 31 meeting. The donated items are shown in parentheses.

ZooMed (MicroClean 316 filter / iguana food); **Fancy Publications** (*Reptiles* magazine subscription); **Guenter Enderle Enterprises, Inc.** (Nekton Tonic-R); **Energy Savers Unlimited** (BrightLight daylight bulb); **Super Pet** (Hanging Gardens cage decor / rock pool cover / Floating Island / Island Sanctuary); **Tetra Terrafauna** (Reptovit supplement / ReptoMin food stix / turtle sulfa block); **Hagen** (OrnamentAlls rock shelter / Prime supplement / Repti-por odor remover); **Ghann's Cricket Farm** (cricket gift certificates); **Reptile Emporium** (InsectNside candy / Larvets Worm Snax); **Absorption Corp.** (Carefresh pet bedding); **Ron & Dotty Humbert** (Swamp Sauce); **Sally Hajek** (color herp prints); **Mike Redmer** (*Field Guide to Amphibians and Reptiles of Illinois*); **Cheryl Roge/ Good Friends Animal Hospital** (tarantula book / Herpcare calcium pellets); **Gary Fogel** (lizard squeaky toy); **Rich Crowley — CHS adoptions** (aquariums / ceramic heating element); **CHS** (carved stone frog / herp T-shirts).

THE ADVENTURES OF SPOT



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